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The Michigan State Senate has passed, after, after some opposition, the bill increasing the maximum limit for the capital stock of mining companies from $2,500,000 to $5,000,000. It does not appear that any of the producing companies has been seriously disturbed by the limit, and it was advocated chiefly by the promoters and organizers of new companies, who are anxious to sell all the stock they can while there is a market for it. Already several companies have wound up their Michigan organizations and have re-incorporated in New Jersey or some other state; but the list does not include any company of long standing.

Some very misleading estimates of the pig iron production of the world last year have been published abroad, and have been extensively copied in American papers; that most current in our exchanges gives Great Britain a considerable gain in 1898, and Russia a much larger one; making also the prediction that Russia will in five years be the third iron producer in the world, if not the second. The real facts are that the British output of pig iron was a little less in 1898 than in 1897, and the Russian increase was small. Russia has undoubtedly great future possibilities as an iron-making country; but the growth of the industry is very slow, and it will be a good many years before the production approaches that of Germany.

The recent changes in the gold mining regulations for the Yukon region, made by the Canadian Government are of some importance. They were made public at Ottawa on April 12th and will go into effect in the Yukon twenty-four hours after the orders are received by the gold commissioner there. This will probably bring them into force about May 1st or soon after.

The first order is one that has several times been asked for; it provides for a yearly exemption of $5,000 gross output per claim, before royalty is charged on gold recovered. This will benefit the smaller miners and may stimulate prospecting. At any rate it will be a concession to a general demand which will doubtless be appreciated.

The second order provides that no government officer or other person employed by the government in any capacity shall hereafter be permitted to locate or record claims on mining lands in the Yukon. This will put an end to a practice of which much complaint has been made and which has amounted almost to a public scandal. It is an intimation also to government officials that they are sent to the Yukon to attend to their proper business, and not to locate and develop mining lands. Apparently the relatives of officials are free to take up claims, and are doing it.

We referred recently to the difference between American and European methods in the face of expanding production. A recent illustration of this is found in the action of the Belgian coke syndicate, which has voted to refuse any contracts for future delivery calling for a larger quantity than is required by the current contracts in force. Should any surplus remain after the regular deliveries are made, it will be distributed pro rata among the applicants. Apparently an increase of production to meet a larger demand is not thought of nor considered possible. The first thought in this country would be of increasing the production to meet the greater demand; not of limiting the demand to present production. Very similar action has been taken by the Bochum coke syndicate in Germany. In both cases buyers have had to accept the terms offered them, since they can do no better.

The price of coke in Belgium, it may be noted, has been fixed by the syndicate for the second half of this year and the first half of 1900 at $3.86 a metric ton on cars at the ovens. This is for ordinary coke; washed coke is to be $4.25 a ton. These prices look pretty high to our iron-masters.

The latest developments in the use of blast furnace gas in operating gas engines have been of such an encouraging nature, that this use promises to extend largely. The John Cockwill Company, at Seraing, in Belgium, which was about the first to experiment in this direction, is so well satisfied with the large engine put in a few months ago, that it is now constructing two large engines, which are expected to develop, 1,000 horse power. Dr. Aime Witz, who made a very careful study of the results obtained with the smaller engines, is now more convinced than ever of the small importance of the objections made against this use of the furnace gases. In a recent paper he urges that a blast furnace can not only obtain all the power needed, but may have a surplus to sell to outsiders.

This would presuppose a continuous running of the furnace, or else the provision of a gas producer plant to supply the engines, when the furnace itself might be shut down for any cause. The first cost and running expenses of such a plant need not be very high, however. The furnishing of power to outsiders is a matter of no immediate im-

portance here; but the utilization of the waste gases should receive attention soon from our progressive iron-masters.

The copper production of the United States for the first quarter of the year shows a considerable increase over the large quantity reported in 1898. It reached a total of 60,441 long tons of fine copper, and the gain over last year was 4,994 tons, or 9.1 per cent. Of this increase 2,844 tons was from the mines, which report to Mr. John Stanton, the statistician, and 2,150 tons from outside sources—that is from small non-reporting mines and from the smelters which treat ores not having copper as their chief value. This result shows how the stimulus of high prices and active demand has already been felt. Should the increase be kept up the gain in copper production in the year 1899 over 1898 will be fully 20,000 tons. Quite possibly it will be greater as a development of production, especially from the "outside sources," may be expected.

While our copper production thus increased, the exports diminished. For the quarter they amounted to 32,409 long tons of fine copper, showing a decrease of 1,946 tons, or 5.7 per cent. This shows an approximate increase of production in the United States of 6,940 tons, as no copper is going into stocks. Undoubtedly there has been a very large increase in consumption. The foreign production, so far as reported, shows a small increase, 6.7 per cent. The European production, however, has been supplemented by unusually large receipts from Mexico and Japan; and there was also some increase from Chile. High prices have also had some effect in checking the demand for electrical work, owing to hesitation about new enterprises.

RIGHT OF WAY FOR MINING TUNNELS.

The Colorado Legislature in 1897 ("11 Sessions," 181) passed a law giving a mining tunnel a right of way through existing claims. The first case in which that act was cited and passed upon is that of Cone and Robinson versus Roxana Gold Mining and Tunnel Company, recently tried before Judge Hallett in the United States Circuit Court at Denver. Cone and Robinson are the owners of the Doctor and Chief lode mining claims, located in 1891, and situated in Cripple Creek, Colo. The Roxana Company is the owner of a subsequently located tunnel site known as the Gold Standard, which on its course, some distance from its mouth, passed through the Doctor claim and just entered the Chief claim, when it was stopped by a temporary injunction. No ore of consequence was removed.

In rendering a decision, the court declared this act unconstitutional as well as a similar one of 1881, saying in part: "No provision is made in either act for ascertaining the need of the tunnel owner for right of way through the servient estate in order to work his own claim beneficially or for compensating the damages done to the estate appropriated to the use of the tunnel. In the absence of such provisions the acts would seem to be in conflict with Sections 14 and 15, Article 11 of the constitution of the State. Section 14 declares that private property shall not be taken for private use except for certain purposes; and Section 15 declares that it shall not be taken without just compensation to the owner." The injunction was made permanent.

Under this decision it will be necessary for tunnel enterprises to secure rights of way by agreements from existing claims, and preferably before penetrating them. In Mexico and British Columbia, where vertical boundaries control, this and similar privileges connected with access, drainage and ventilation are granted under direction of Government mining officials, to the advancement of the industry; but in the United States, with so many possibilities in the way of mining law suits, such privileges could not be granted with safety.

THE PARIS EXPOSITION.

We recently called attention to the necessity of prompt action on the part of our manufacturers and miners, if they desired a proper representation in the Paris Exposition of 1900. That they should be properly represented there, we believe to be a matter of importance both to them individually and to the country at large. The United States is now taking such a position in the industrial and commercial world, and is becoming so large a factor in foreign trade, that it is of great importance to emphasize that fact by making a proper exhibition of our productions in the World's Fair which is to signalize the close of the Nineteenth Century. Any deficiency in the exhibition will be eagerly seized upon by our European rivals, who will claim it as an evidence that we are falling off, or at any rate are not able to hold the position we have claimed, and for a time assumed; and, however deceptive any such inference might be, we ought not to permit it to be drawn.

The full exhibition of our products is especially called for in the mining and metallurgical departments, since the products of those classes of industry constitute so important a part of our foreign trade. We have claimed—and we believe with good reason—pre-eminent excellence in those industries, and both our national pride and our commercial interests demand that we should make the claim good so far as is possible. People from every part of the world will attend this exposition and very many will be strongly impressed by what they see there.

The time is growing short, and we are informed that it will be necessary for all who, propose to take part to notify the commissioners at as early a date as possible. Many applications have already been filed, but there are doubtless a number to come, while others who are still considering the matter should come to a conclusion at once. Commissioner General Peck has recently succeeded in obtaining an addition of over 75,000 square feet to the space originally alloted to the United States, and there is some prospect that he may be able to secure a further extension. Proper space has also been granted on the grounds for the erection of the United States building for which sufficient funds have been appropriated by Congress.

The special charge of Group XI—mines and metallurgy—has been given to Mr. F. J. V. Skiff as director, and all of those who remember Mr. Skiff's ability while in charge of the department of mines and mining at Chicago, will appreciate the appropriateness of this appointment. It would be difficult to make a better selection, and all those who expect to be represented in this group may be confident that their interests will be well served. Dr. W. S. Ward, of Colorado, has been appointed assistant director of this department, and is now actively engaged in the preparations for the exposition and in the necessary preliminary work.

We trust that it will not be necessary to urge the matter further upon our readers, and that they will be ready to attend to their own interests and arrange for proper representation at an early date.

EMPLOYEES AND ACCIDENTS IN THE ANTHRACITE REGION.

In the "Engineering and Mining Journal" April 1st, we gave the statistics of production and shipments from the anthracite coal region of Pensylvania. From the reports of the mine inspectors in charge of the different districts of the anthracite region, we are now able to give some further statements in relation to the number of employees, the accidents and other particulars in relation to the mines.

The reports of the inspectors this year for the first time include a good deal of additional information as to the number of steam pumps, steam engines, electric and other machinery in use in the collieries. Unfortunately this table is not complete, as the information has not in all cases been supplied, but it will probably be made so with another year's experience in the collection of similar statistics. The number of steam boilers in use has long been reported. In 1898 there were 6,116 of all kinds in use, at the different collieries. This shows some decrease in number as compared with 1897, but not in the total power, owing to the substitution in several cases of larger boilers for those previously in use. As to explosives, we find that in mining work in the anthracite region in 1898 there were used 1,212,639 kegs of blasting powder and 3,025,005 pounds of dynamite.

The number of employees in the anthracite region, the average quantity of coal mined per employee and the number of persons killed and injured in and about the mines are shown in the following table; the tons given in the anthracite reports are in all cases the long ton of 2,240 pounds:

	1897.	1898.	Changes.
Employees, underground	95,812	91,171	D. 4,641
Employees, surface	53,745	51,376	D. 2,369
Total number	149,557	142,547	D. 7,010
Tons coal mined per employee	306	331	I. 25
Employees killed	424	409	D. 15
Employees injured	1,106	1,134	I. 28
Total casualties	1,530	1,543	I. 13

It will be seen that the number of employees shows a decrease of about 5 per cent., although there was some increase in production. This was not due so much to additional use of machinery or to change in methods as to the migration of some miners who seem to have found more profitable work elsewhere. Probably a still further reduction could be made to advantage, since some of the evils which have been complained of in the district have resulted from a surplus of labor.

The wages paid for mining anthracite coal are as a rule good, and they are much better nominally than those paid in many of the bituminous coal mining districts; but under the system followed in the region, it has been for several years past difficult for a miner to make more than half or in some cases one-third time, and the resultant income has been too often miserably insufficient.

Notwithstanding the increase in mechanical haulage of various kinds, the mine mule has not yet gone out of date, and we find that in 1898 there were 15,907 horses and mules employed in the collieries, chiefly under ground, an increase of thirty only over 1897.

The number of persons killed, it will be seen from the table, shows a decrease as compared with the previous year, while the number injured shows a slight increase. There were no very bad or sensational accidents during the year 1898 and few which involved the death of a number of persons. Taking the entire production of the mines we find that there were last year 115,220 tons of coal mined for each man killed; 41,573 tons for each person injured; or combining the two, 30,554 tons mined for each casualty. Taking the whole number of employees, we find that the proportion of killed was 2.87 per 1,000; the proportion of injured was 7.96 in 1,000; while the toal number of casualties was 10.83 in 1,000. If, however, we take the underground employees alone and exclude all accidents happening on the surface, we find the proportion much higher, the number of deaths being 4.22 in 1,000; the number injured 11.49, and the total number of casualties 15.71 in 1,000.

The following table shows the principal causes of accident as reported:

	Killed.	Injured.	Total	P. C.
Falls of roof, slate and coal	186	380	566	36.7
Cars and mining machinery	61	261	322	20.9
Explosions of gas and dust	40	199	239	15.5
Explosions of powder, etc., and blasts	34	110	144	9.3
Falling down shafts	17	6	23	1.5
Miscellaneous	47	92	139	9.0
Total	385	1,048	1,433	92.9
Surface accidents	24	86	110	7.1
Total	409	1,134	1,543	100.0

It will be seen from this table that in the anthracite region, as in all mining operations, falls of roof and coal lead as causes of accident. Next to this came injuries from moving cars and mining machinery; while explosions of gas and coal dust held the third place, causing only 15.5 per cent. of the coal number of casualties. This shows the care taken in ventilating and operating the anthracite mines which are, as a rule, the most fiery in the world. Explosions of powder and blast also cause a considerable number of accidents.

Upon the whole the record is not an unfavorable one, and the number of persons killed and injured has a general tendency to decrease from year to year.

NEW PUBLICATIONS.

"The Journal of the Iron and Steel Institute," Vol. LIV. Edited by Bennett H. Brough. London; E. & F. N. Spon; and New York; Spon & Chamberlain, 1899. Cloth, octavo, pages 624; illustrated. Price, in New York (to non-members), $6.

As usual, this annual collection of papers contains a number that are noteworthy. Among them we have hardly space to notice more than a few, and of these titles the ensuing discussion in several cases is quite as interesting as the original contribution. The leading paper is Dr. R. Akerman's essay on the Swedish Iron Industry, which is followed by M. C. Nordenstrom's paper on Swedish Ore Mining. These are supplemented by an account of the remarkable iron ore deposits at Kiirunavaara and Luossavaara, by G. Nordenstrom. There are papers by A. Witz on "Motors Using Gas;" "Experiments on Using Blast-furnace Gas;" on "Microchemistry of Cementation," by Prof. J. C. Arnold. Mr. Sundberg has contributed another essay on the danger of using too hard steel rails, to which subject attention has previously been called in these pages. The papers read are classed under the different sections of the society, as, for example, iron ore, iron smelting, mechanical preparation, refractory materials, fuel (coal, charcoal, coke, petroleum, natural gas, artificial gas, etc.), coal using, coal washing, properties of pig iron, slag, etc., foundry practice, etc., etc.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Fortschritte der angewandten Elektrochemie und der Acetylen-Industrie im Jahre, 1898." Von Dr. Franz Peters. Stuttgart, Germany, 1899; published by A. Kröner. Pages, 412; illustrated.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Grand Encampment District, Wyoming.

Sir: I notice in your issue for April 1st, a question was asked you in regard to the Grand Encampment Mining District; in reply you say you have heard nothing of the district this year, and you suppose the Camp is snowed in. I wish to inform your readers that while there is yet heavy snow on the ground, five good mines are working, and taking out high grade copper ore. Nothing is being shipped at present on account of the bad roads from the mines to the railroad, the distance being 60 miles. The Farris Haggerty is taking out 20 tons per day of 70 per cent. ore; the Charter Oak about 10 tons; Haskins 10 tons; Meta one to two cars a week. Before July there can be good ore shipped from ten good copper mines in the district.

Charles P. Clemmons.

Rawlins, Wyo., April 7, 1899.

Mica Dealers and Advertising.

Sir: The mention of my name as that of a "mica dealer," printed in your issue of December 24th, 1898, has caused a number of persons in various parts of the country to send me specimens of that mineral, with letters courteously inviting me to tell all I know about mica. As I know nothing about it commercially and have no business interest whatever in it, I should be glad to spare the letter writers as well as myself the trouble of fruitless correspondence. On inquiry I have learned that Mr. Joseph Hague, of 4 Gold Street, New York, is, or has been, a mica dealer. This incident fully justifies the reason I have always given you for declining to advertise professionally in your paper, namely, that such advertisement would surely bring me more business than I could possibly attend to.

James D. Hague.

New York, April 15, 1899.

The Wetherill Separator.

Sir: In your issue of April 15th, in answering the inquiry of a correspondent respecting zinc-lead ores, you point out the fact that the Wetherill process of magnetic separation is being used to separate the blende and galena of such ores, and refer your correspondent to the New Jersey Zinc Company. We beg to say that while the New Jersey Zinc Company has secured the right to use the Wetherill process in its business, the patents controlling the process in the United States and Canada are owned by the Wetherill Separating Company; while those obtained in other countries are held by the Metallurgische Gesellschaft, A. G., or the technical department of the Metallgesellschaft, Frankfurt a/M, Germany.

In order that we may be able to demonstrate the possibilities of the process to interested parties, we have erected a large and complete testing laboratory, and shall be pleased to hear from any of your correspondents having special and difficult problems in ore concentration for solution. Respecting the concentration of antimony ores, we would inform your correspondents, F. J. S. and G. D. W., that many foreign antimony ores, especially the argentiferous and auriferous varieties, have proved magnetic and can be readily concentrated by our process.

The Wetherill Separating Company, per J. N. Judson.

New York, April 17, 1899.

Correspondence Schools.

Sir:—In the "Engineering and Mining Journal of March 25th I noticed a letter from J. G. B. asking for opinions regarding the practicability of correspondence schools. While my experience has been somewhat limited, I believe that I am justified in stating that this system of teaching is particularly valuable to the many thousands who desire scientific instruction and to perfect themselves in the theory or their trades or professions. Although I have not completed my course of study with the United Correspondence Schools, I have already been greatly benefited by the knowledge I have gained.

C. E. Wesley.

Morristown, N. J. April 6, 1899

Sir:—J. H. McL., in his letter of February 21st, asks for advice regarding correspondence schools and states that, while his experience with machinery has been limited to feeding a stone crusher in a quarry, he likes machinery and believes if he could get a technical education he could better his position. Speaking from my own experience, I wish to say that I consider the correspondence method of instruction to be practical and thorough and of immense benefit to the large number of people situated like the writer. With a natural liking for machinery and an earnest desire to learn, he should experience no difficulty in securing a technical education which will enable him to fill a more responsible position and be of value to him during the remainder of his life. The benefit I have derived from my course of study with the United Correspondence Schools has already been of far more value to me than the cost of the course.

Fred Haslow.

Rockland, Me., April 3, 1899.

Sir:—In expressing my opinion regarding the practicability of correspondence schools I desire to say that as technical knowledge is required in every department of life, I believe any school or system of instruction which will enable men to secure higher education is to be welcomed. To the large number of people who desire technical education and are unable to leave business to attend college, I consider the correspondence schools of great value. My experience with the United Correspondence Schools has been very satisfactory; in fact, it has enabled me to secure knowledge which it would have been difficult, if not impossible, for me to attain by any other method. I would advise anyone who is desirous of obtaining a technical education and cannot spend the time and money to attend college, to take advantage of the opportunity offered by these correspondence schools to study at home.

L. G. N.

Birmingham, Ala., March 26, 1899.

Sir:—The extensive employment of electrical machinery in mines has created a demand for a large class of mine employees who have a knowledge of electrical apparatus. The more complete and thorough this knowledge is, the more valuable its possessor becomes to his employer. In furnishing the means by which this knowledge may be obtained, the United Correspondence Schools are supplying a demand that could not be met by any other method. Their system offers a chance for mine workers to gain a thorough knowledge of the theory of mining and at the same time a sufficient knowledge of the principles of electrical machinery to enable them to successfully install and operate such apparatus as may be required in the operation of the mine. I believe the development of this system of education has been the means by which many mine employes have been enabled to fill more important and better paying positions.

C. A. M.

Stanton, Va., April 3, 1899.

LEAD POISONING IN THE POTTERIES.

The joint report of Professor Thorpe and Professor Oliver to the British Home Secretary on the subject of the employment of compounds of lead in the manufacture of pottery and their influence upon the health of the workpeople has been issued, and an excellent abstract is published in the London "Times." The inquiry instituted in 1893 clearly established the fact that lead poisoning prevailed extensively, and the object of the inquiry now concluded, which was entered upon last May, was to ascertain how far the danger may be diminished or removed by substituting for the white lead ordinarily used some less soluble compound of lead, a silicate, or else a leadless glaze; how far any substitutes found to be harmless or less dangerous than the basic carbonate of lead lend themselves to the varied practical requirements of the manufacturers; and, further, to obtain suggestions as to the means which might be adopted to counteract the evil effects of lead compounds actually in use. The verification of the absence of lead from the so-called leadless glazes was also proposed as a subject of inquiry. Besides visiting factories of earthenware and china at Stoke, Hanley, Burslem and other places in the Pottery District, Professors Thorpe and Oliver have visited, either singly or together, the leading manufactories on the Continent, including those at Delft, La Louviere, Maastricht, Copenhagen, Stockholm, Dresden and the Royal Prussian Porcelain Works at Charlottenburg. Special reports on these visits by Professor Thorpe are appended to the joint report, and the "Blue-book" also contains a report by Professor Thorpe of experiments on substitutes for raw lead conducted in the Government laboratory, and a statement, for purposes of comparison, of the special rules for the manufacture of pottery in force in England and the regulations observed in foreign countries.

The report states at the outset that, since the inquiry of 1893, very little of an effective character has been done, or even attempted, to remedy the evil of lead-poisoning, and from the figures given it appears that of the total male workers, in the year 1898, 4.9 per cent. became "leaded," while of the female workers the proportion is as high as 12.4 per cent. With regard to obviating the use of lead in glazes, inquiry at first showed that only in a few cases were the results of experiments satisfactory, although in the case of white and cream-colored ware (as distinct from the use of glazes in conjunction with colors) there ought to be little difficulty in the application of a leadless glaze. In the last six months, however, many successful attempts to substitute a leadless glaze have been made by the manufacturers, and the authors of the report say they "have no doubt whatever that leadless glazes, of sufficient brilliancy, covering power, and durability, and adapted to all kinds of table, domestic and sanitary ware, are now within the reach of the manufacturer," and that this fact is now becoming admitted in the trade. If, however, the use of lead compounds in glazes is still to be permitted, the report states that much may be done to minimize their evil effects, and that no practical difficulties would result to the trade from the general substitution of fritted or raw lead. The substitution of a simple silicate, where it has been effected, has been attended with advantage, though cases of poisoning from it are not unknown. With regard to this proposed change the report says:

"There is, however, no necessity that the fritted lead should be a simple silicate. Experiments made in the Government laboratory upon products obtained from various manufacturers, show that a properly compounded double silicate may be made which fulfils all the requirements of the potter and is at the same time practically insoluble in acids.

"A compound of the following proximite compositions, 4 PbO, 6 CaO, 2 $(NaK)_2O$, 3 Al_2O_3 2 B_2O_3 37 SiO_2, corresponding to the percentage composition: Lead monoxide, 22.0; alumina, 7.5; lime, 8.3; alkalis, 3.9; boracic acid, 3.5; silica, 54.8; total, 100.0; is but slightly attacked even by strong hydrochloric acid, and is found to be a suitable constituent of a glaze. Such a compound may be made by fritting an intimate mixture of litharge, flint, felspar, incal and cnalk; or an intimate mixture of litharge, flint-glass, borax, china-clay and ground flint; or, as is done on the Continent, a portion of the flint may be replaced by white sand, the color, if necessary, being corrected by cobalt.

With regard to the workpeople the report, besides advocating the exclusion of women from certain parts of the work—except where leadless glazes are used—suggests the adoption of expedients to avoid the absorption of lead by the skin in the process of dipping. In foreign factories either the dippers are provided with india-rubber gloves up to the elbow, or else the articles to be dipped are held by tongs, while in England the dippers' hands and arms are immersed in the glazing material. India-rubber gloves have been tried and though they have not found favor in the Pottery District, a return to them is advised by Professors Thorpe and Oliver; and from this passage and from the subjoined quotation from their report it seems clear that, as in the case of the use of phosphorus in matches, the remedy for much of the existing evil lies in the hands of the workers themselves, if they would only avail themselves of it.

"It must be clearly understood that, so long as lead compounds are employed in pottery manufacture, neither the special rules of the Home Office nor the precautionary appliances of the manufacturers will fully achieve their object if the workpeople themselves will not exercise a reasonable amount of care and common sense in obeying these rules and in using these appliances. If the workers will persist in eating their food with dirty fingers, or in places where lead is used; if they will neglect cleanliness of person and clothing, or allow the colors to drop about; or hold their pencils in the mouth; or rub their eyes with unwashed hands, it becomes impossible to protect them from mischief. If lead were more sharp and sudden in its attacks as a poison we should probably hear much less of its evil consequences. It is, however, slow and insidious in its action, and persons may be leaded to a grave extent for months or even years until some functional disturbance arises which seems to let loose the latent poison. It cannot be too strongly impressed upon the workers in lead that no amount of familiarity with its use ought to breed contempt for its evil power."

Further, the report expresses strong dissent from the doubts which have been expressed in some quarters as to the greater susceptibility of women and young persons to the evil effects of the metal; and points out that in certain potteries and lead works in Belgium and in Paris women are not allowed in any circumstances to work in the factories, owing to the recognized destructive effect of lead-poisoning on the power of child-bearing. While not recommending the complete abolition of even married female labor in the potteries, Professors Thorpe and Oliver make definite proposals as to the restriction of female labor, a subject which they acknowledge to have been one of the most difficult problems of the inquiry. The report concludes as follows:

"The conclusions at which we arrive from the inquiries we have instituted at home and abroad, and from the observations and experiments we have made, are:

"That by far the greater amount of earthenware of the class already specified can be glazed without the use of lead in any form. It has been demonstrated, without the slightest doubt, that the ware so made is in no respects inferior to that coated with lead-glaze. There seems no reason, therefore, why in the manufacture of this class of goods the operatives should still continue to be exposed to the evils which the use of lead-glaze entails.

"There are, however, certain branches of the pottery industry in which it would be more difficult to dispense with the use of lead compounds. But there is no reason why, in these cases, the lead so employed should not be in the form of a fritted double silicate. Such a compound, if properly made, is but slightly attacked by even strong hydrochloric, acetic, or lactic acid. There can be little doubt that, if lead must be used, the employment of such a compound silicate—if its use could be ensured—would greatly diminish the evil of lead-poisoning.

"The use of raw lead as an ingredient of glazing material, or as an ingredient of colors which have to be subsequently fired, should be absolutely prohibited.

"As it would be very difficult to ensure that an innocuous lead-glaze shall be employed, we are of opinion that young persons and women should be excluded from employment as dippers, dippers' assistants, ware-cleaners after dippers and glost-placers in factories where lead-glaze is used, and that the adult male dippers, dippers' assistants, ware-cleaners and glost-placers should be subjected to systematic medical inspection.

"In the 1893 report the medical members of the committee expressed the opinion that many old factories are wholly, or in part, unfit in a sanitary point of view for occupation, and they suggested that 'there should be some authority to close them, or whatever part of them is condemned, on the same principle as dwellings are declared uninhabitable.' We share this opinion and we concur in the suggestion. Certain of the factories we have inspected are in the last stages of dilapidation, and it appears to us to be well-nigh impossible to introduce into them such re-arrangements or additions as are required by the amended special rules."

The Home Secretary has sent copies of the report to all manufacturers of pottery, with a circular calling attention to its conclusions and intimating that it will be necessary to add to the special rules which came into force last year provisions to restrict and control the use of lead.

THE ARRASTRA AND THE STAMP MILL.

In a letter recently published in the "Boulder County Herald," Mr. M. F. Leech of Boulder, Colo., says that the arrastra has excellent claims to consideration. It is a mistake, he says, to say that the arrastra is too slow for this age. At Silver City, Idaho, there has been an arrastra mill in operation almost continuously for the past 35 years. They use a small 5-stamp battery to crush the ore (dry) to about ¼ mesh. From this battery the ore goes to two arrastras each 5 ft. in diameter, handle about 5 tons each, crushing to a fineness of 100 mesh and over. The result is that more bullion is saved at less expensse for man and power than in modern stamp mills operating in the same vicinity. This rather crude plant could be improved on by using a rock-breaker and set of rolls and increasing the diameter of the arrastras to about 10 ft.; also by placing the arrastras tandem one below the other. Three 10-ft. arrastras set tandem with ore crushed to 10 mesh by rolls would easily handle 30 ton of average ore in 24 hours. The power expended would be very much less than would be required to do the same work by any modern stamp mill or pulverizer now in operation. There is a very great gain in the crushing capacity by setting the arrastras tandem on account of the drag stones in second and third series having fine material to work on and therefore getting down closer to their work. It also increases the chances of amalgamation. When necessary to operate concentrators after the arrastras, the operation can be made continuous by adding the necessary amount of water in the lower arrastra, the upper one being fed by an automatic feeder. The pulverizing amalgamation and concentrating would therefore be continuous and automatic. The majority of base ores can be made amenable to this mode of milling by placing an automatic roasting furnace between the rolls and the arrastras, allow the roasted ore to go to the arrastra, while hot, dispensing with cooling floors and rehandling, depending on the concentrators to catch anything missed by the lack of dead roast in the furnaces, the arrastras amalgamating all that has been made free in the roasters. Hot ore would make hot water and hot water will aid in amalgamation, also be a very great aid to the subsequent concentration.

LIQUEFYING AIR.—Attention has been directed by W. Hempel, to the practical application of air rich in oxygen obtained by liquefying air and partially separating the constituents by practical distillation. Linde has stated that a cubic meter of 50 per cent. oxygen can be produced at a cost of about 0.3c. The value of ordinary generator or producer gas is very greatly diminished by the large percentage of nitrogen it contains; this could be reduced to less than one-half by the use of air containing 50 per cent. of oxygen and the gas would then be available for general use for heating, and, if incandescent burners are employed, for lighting also. It is also suggested that the use of air rich in oxygen would enable results to be obtained with poor fuel that are now only effected with the best kinds of coal.

THE UTICA MINE CHLORINATION PLANT.

Written for the Engineering and Mining Journal by Thomas N. Smith.

The chlorination plant of the Utica Mining Company at Angel's Camp, Cal., consists of six long reverbertory furnaces, the inside dimensions of each being 12 ft. by 80 ft. The hearth of each is one continuous plane, but the charges are about 2 ft. apart, and there are four in each oven during the time they are in operation. The roasting is done in the 30 ft. at the fire-box or finishing end. This charge, in which the sulphur is all on fire, is moved forward into this 30 ft. and is spread out evenly over the hearth and all the doors opened to give it as much air as possible without draft, no wood being burned in the fire-box at this time. As soon as the sparks have disappeared the back half of the charge is moved forward 15 ft. and spread over the other half and the doors shut, and a fire started in the fire-box. This fire is kept up two hours out of every six, and in that time a red heat is given to the charge that is being finished, and the sulphur in the second charge, or the one following, is on fire; it in the meantime having been moved into the space left vacant by the first. In two hours from this time 40 lbs. of salt are added to the charge.

As soon as the first charge has taken on a light red heat it is finished and taken out of the oven through a hole in the hearth and is spread out on the cooling floor to cool.

The second charge then takes the place of the first,and the two others are moved forward and another charge put into the oven. The ovens are worked by six hour shifts, one man on a shift working eight hours; so that at regular intervals two men are working together, and one charge is drawn and one put in each shift. The charges weight 2,400 lbs. and hold about 10 per cent. moisture. The sulphides contain 33 per cent. Fe., 37 S. and 30 $CaCO_3$, and it is on acount of the $CaCO_3$ that a light red heat is given the charges at the finish, for with less heat much more chlorine would be required in the subsequent treatment. To every charge, after it is cooled on the floor, 12½ lbs. of sulphuric acid are added, together with about 12 per cent. of water. It is then mixed and shoveled into a heap in front of the leaching tub. The leaching tubs are of pine with 2-in. staves and bottom; being 8 ft. 6 in. in diameter by 3 ft. 6 in. high, and there are four for each oven.

In each tub is a gravel filter that take up about 6 in. of the bottom, made up as follows. Pieces of wood 1½ in. square and of length as required, are placed on the bottom about 1 ft. apart. Across these are placed 6-in. strips of wood about 1 in. apart. On this are placed thin, flat pieces of rock, and then gravel of about 1 in. diameter, using finer until sand is used, 6 or 7 sizes being required for the filter. The last, or sand, is put between the 4-in. strips used as a floor to shovel from.

When an oven is in operation there is enough roasted ore to fill a leaching tub every morning, and it is screened into a tub, the screen being shifted at intervals to allow the ore to lie as loosely as possible. The screen used is one of 9 meshes to the square inch. The ore is leveled with the top of the tub and tamped around the edge, so that the water when run in will not make channels, but will percolate evenly through the ore. The cover is then put on and is luted with clay and tailings in the rabbet made for it in the tub. The ore is now ready for the chlorine gas, which is introduced into the bottom of the tank through three openings and gradually works up through the ore. In the cover of each tub are openings for introducing water, and when the ore is charged with gas, ammonia held over one of the openings gives off fumes of ammonia chloride, and when these fumes are dense and white, enough chlorine has been put into the tub. The time required for generating this gas is 6 to 8 hours.

Until we began to use liquid chlorine we used 3 lead generators for each oven, and the charge used for the 3 was 90 lbs. of manganese, 100 lbs. of salt and 200 lbs. of sulphuric acid. The tub having been filled with chlorine gas, it is kept charged with gas 48 hours, when the ore is leached with water. The tub is filled with water and allowed to stand an hour, when the gold solution is drawn from the bottom, the tub being kept full of water by the same amount running in as is running out.

After filling a vat 4 ft. high by 8 ft. diameter, we test the solution with iron sulphate, and if there is no longer gold in the solution, the drain hose is hung up and the tub is allowed to stand till the next morning, when another ton of solution is run off and the leaching finished. To the gold solution drawn from one tub 15 lbs. of sulphuric acid are added to precipitate lead, lime, etc., and it is then run into precipitating tanks and the gold precipitated with a solution of iron sulphate. This sulphate is run in until there is no longer a coloration after a very thorough stirring. This solution is allowed to stand 48 hours, in which time the gold settles to the bottom, when it is drawn off, and more gold solution added until the clean-up. An ounce of $BaCl_2$, dissolved in water and sprinkled or sprayed over the solution after the gold has been precipitated is changed to $BaSo_4$ by the sulphuric acid in it, and by its weight takes all the gold to the bottom in a shorter time; while if it is not used there is always a little gold held for suspension.

In making the clean-up the waste liquor is drawn off and the gold on the bottom of each tub washed out and all the gold and wash water put into one tub, where it is thoroughly washed to get rid of all acid; after which it is put into collanders, lined with filter paper, dried and melted in crucibles with borax, and run into bars. We use corrosive sublimate for toughening. The gold is .997 fine. The extraction is 90 per cent., but the concentrates are low in value.

The iron sulphate is made in the works from old scrap iron, sulphuric acid and water; 15 lbs. of sulphuric acid are used for each tub of ore leached.

CHLORINATION WORKS AT UTICA MINES, ANGEL'S CAMP, CALIFORNIA.

At the present time we are operating 4 ovens and in 30 days work 500 tons of concentrates. The cost of treatment was formerly as follows for a month's run:

16 roasters at $2.50	per day		$1,000.00
160 lbs. of salt	"	at $16.25 per ton	39.00
6 cords of wood	"	" 5.00 per cord	900.00
360 lbs. of manganese	"	" 31.00 per ton	167.40
400 " salt	"	" 16.25 "	97.50
800 " sulphuric acid	"	" 35.80 "	429.60
60 " " "	"	" " "	32.22
240 " " "	"	" " "	128.88
4 chlorinators at $3	"		360.00
4 floormen " 2.50	"		300.00
Total			$3,654.60
Add f reman			250.00
Total ($7.80 per ton)			$3,904.60

The cost of treatment since we began the use of liquid chlorine is as follows for the same period:

16 roasters at $2.50	per day		$1,200.00
160 lbs of salt	"	at $16.25 per ton	39.00
6 cords of wood	"	" 5.00 per cord	900.00
36 lbs. of manganese	"	" 31.00 per ton	16.74
40 " salt	"	" 16.25 "	9.75
80 " sulphuric acid	"	" 35.80 "	42.96
60 " " "	"	" " "	32.22
240 " " "	"	" " "	128.88
4 chlorinators at $3	"		360.00
1 floorman			75.00
10 drums of liquid chlorine at $40			400.00
Foreman			250.00
Total ($6.90 per ton)			$3,454.55

In the above itemized statement of cost we have allowed one drum for every 50 tons of concentrates treated, but we have treated 72 tons with one drum; and if the sand in the concentrates were silica, we could treat 100 tons. The time required for putting the gas through the ore is 20 minutes with liquid chlorine. We still use 10 per cent. of the

material formerly used for generating gas, to keep the gas in the tub up to the density necessary.

Liquid chlorine is chlorine gas compressed to liquid by a pressure of 200 lbs. One drum of liquid chlorine weighs 300 lbs., holds 115 lbs. of liquid chlorine, and takes the place of 972 lbs. of manganese, 1,080 lbs. of salt and 2,160 lbs. of sulphuric acid. The size of a drum is 10 in. diameter and 5 ft. long.

IRON AND STEEL PRODUCTION IN FRANCE.

By Our Special Correspondent.

The production of pig iron in France during the past year, as shown by the official returns just issued, was as follows, in metric tons:

	1897.	1898.	Increase.
Foundry iron	521,821	549,014	27,193
Forge and steel pig	1,962,370	1,985,413	23,043
Totals	2,484,191	2,534,427	50,236

The total increase last year was 2 per cent., which is less than had been expected. In the Nord and Meurthe-et-Moselle, the two chief producing districts, there was very little change from 1897; but there were large gains in the Gard, the Loire Inflireure and Savne-et-Loire. A greater increase is expected during the current year, and measures are being taken to increase the supplies of iron ores.

Of the pig iron produced in 1898, there were 2,508,177 tons made with coke as fuel; 19,496 with mixed fuel; and 6,754 tons with charcoal.

Steel production shows a much larger increase than pig iron. The make of steel ingots was as follows, in metric tons:

	1897.	1898.	Increase.
Bessemer	802,326	905,995	103,669
Open-hearth	522,887	535,638	12,757
Totals	1,325,213	1,441,633	116,420

The total increase was 8.1 per cent., and was chiefly in Bessemer steel. The proportion of acid and basic steel is not given; but the acid process is that chiefly used. Over a third of the output is produced in Meurthe-et-Moselle, which last year turned out 548,145 tons, as compared with 476,937 tons in 1897, while in the Nord the output increased from 216,119 tons in 1897 to 226,800 tons last year.

Included in the general statement above are 15,411 tons crucible steel; 6,672 tons puddled steel; 1,100 tons steel made by cementation; a total of 23,193 tons of these special steels. The total in 1897 was 19,189 tons, showing an increase last year of 4,004 tons.

The output of finished steel products also showed a large increase, as shown in the following table:

	1897.	1898.	Increase.
Rails	568,908	651,733	82,825
Bars	191,860	222,054	30,194
Plates, etc.	234,033	264,846	30,813
Totals	994,801	1,138,633	143,832

The output of finished steel in the Meurthe-et-Moselle and Nord districts is increasing. In the former 224,067 tons were produced, as against only 158,127 tons in 1897, and in the latter 231,690 tons, as compared with 204,648 tons.

Nothwithstanding the increase in steel, there was also a gain in nearly all the forms of finished iron, the only exception being in rails; and the quantity of steel rails now made is very small. The production of wrought iron is given below, in metric tons:

	1897.	1898.	Changes.
Rails	593	230	D. 363
Bars and shapes	704,324	721,230	I. 16,906
Plates, etc.	79,049	80,083	I. 1,034
Totals	783,966	801,543	I. 17,577

The raw material converted into finished iron in 1898 included 545,086 tons puddled iron; 5,977 tons charcoal blooms and 250,480 tons of scrap. The Nord is by far the largest producer of finished iron in France, and notwithstanding the growing output of steel in the same district, the production of finished iron increased from only 295,385 tons in 1897 to 327,326 tons last year. There was also a large increase in the output in the Allier, Seine and Haute-Marne departments, while on the other hand a falling off was recorded in the production in Meurthe-et-Moselle, the Ardennes, Oise and Arieze.

THE ASPHALT DEPOSITS OF MIDDLE PARK, COLORADO.

Written for The Engineering and Mining Journal by H. A. Lee.

Some interest has been aroused of late in the discovery of asphaltum in the Middle Park, Grand County, Colorado. During the past year an attempt has been made to explore the deposits, and considerable work has been done to ascertain their character and extent. Little has been accomplished, however, in this respect. The deposits consist, as far as discovered, of small fissures in the cretaceous formation extending along 106th meridian north of latitude 40°, as described by Hayden.

These fissures seem to cut the formation, which dips to the west and seems to be the eastern extremity of the cretaceous sandstones of Utah and Western Colorado. The veins have an inclination of from 20° to 40°, depending on the slope or incline of the surface. The elevation is about 10,500 ft. The country is very mountainous, cut by deep gulches or water courses and is heavily timbered. The snowfall is heavy, and lies upon the ground late in the Spring. The surface is completely disintegrated and the formation is covered with a heavy wash, in some cases 50 ft. deep, making prospecting very difficult.

The size of the veins discovered varies from a mere seam in the formation to disconnected pockets of from 4 to 6 ft. in width. The vein completely pinches out at about 50 ft. below the surface, from the weight of the formation above the incline. The veins show strong volcanic action, the formation being heavily stained for considerable distance either side of the streak, and action of the gases emitted is noticeable throughout the traverse seams in the rock for a distance of from 50 to 100 ft.

The product, so far as ascertained, is of two kinds. A hard, brownish substance, having a smooth fracture, though tough and granular in its structure, readily fusible over flame, will not melt of itself, but soluble under heat in oil and soluble cold in benzole. In solution it is dark black in appearance and lustrous. This seems to have been subjected to a very high temperature, fills the outcrop of the vein and seems to be the general character of the deposits for a distance of 50 ft. in depth, or down to the pinch in the vein. Another product is found in pockets or swells in the vein, which seems to have been a secondary flow, much deeper in appearance, very brittle, with conchoidal fracture, granular structure with brownish powder and appears to be a similar product to the uintaite or gilsonite of the Utah fields. This, too, is wanting in volatile matter, easily fusible under flame, but will not melt of itself. It is soluble in oil, but at 300° F. This would appear to be the character of the product below, though it is believed it will become more soluble without excessive heat and contain more volatile matter as depth is gained.

The basin to the east of these deposits and in the country west of Grand Lake in many places shows an overflow of Brea, but its source has not been found. The deposits so far discovered are almost inaccessible, owing to the distance, 60 miles, from the nearest railroad point. Cost of transportation by wagon to railroad is necessarily great, owing to the rough mountain roads and high passes to be crossed. The deposits can only be worked during the summer months, if the product is found to be of sufficient value to work at all.

About 115 tons of this product was taken out in 1898. A portion of the second grade described above was marketed at $38. The cost of wagon haul was $18; railroad freight $12.50; cost of mining and sacking $16 per ton; total $46.50 a ton.

It is doubtful whether the product can be made available for the market in whatever branch of trade it might be used until cheaper means of transportation can be afforded.

COPPER PRODUCTION IN CHILE.

Messrs. Jackson Brothers, of Valparaiso, make the following statement of exports of copper produce from Chile and Bolivia for three years past. The figures are in Chilean quintals, the totals being given also in long tons and metric tons:

	1896		1897		1898	
	Total.	Fine Copper.	Total.	Fine Copper.	Total.	Fine Copper.
Bar Copper	459,380	459,380	418,665	418,665	448,585	448,585
Copper Regulus	67,945	34,506	86,538	42,661	81,141	41,930
Copper Ores	133,712	24,139	94,550	20,786	324,919	64,023
Total, quintals		518,025		482,112		554,538
Total, long tons		23,598		21,870		25,155
Total, metric tons		23,422		22,221		25,559

The exports last year exceeded those of 1897 by 15.0 per cent., and those of 1896 by 7.1 per cent.; they were the largest reported since 1890. The quantity, however, was considerably exceeded in previous years, and was less by 295,466 quintals (fine copper), or 34.8 per cent., than the maximum of 850,004 quintals reached in 1885.

Taking the fine copper as a standard, the exports last year were divided as follows: Bar copper, 80.9 per cent.; copper in regulus, 7.6 per cent.; copper in ores, 11.5 per cent. The proportion of bar copper was lower than for a number of years past, while the ores show a large increase.

DENSITY OF LIQUID AIR.—In recent experiments, Messrs. Lädenburg and Krügel find that the density of liquid air is less than that of water. Air freshly liquefied and found to contain over 50 per cent. of oxygen had a specific gravity .995. As the nitrogen evaporated the specific gravity increased, so that after two or three days the liquid containing 94 per cent. oxygen had a specific gravity 1.112. From the data obtained it is calculated that if atmospheric air could be liquefied without change of composition, its specific gravity at its boiling point would be between .87 and .90.

REGENERATING AIR.—A discovery of a substance capable of removing carbonic acid gas and water from respired air, and at the same time restoring oxygen to it, was recently communicated to the Académie de Médecine. Subsequently two communications on the subject appeared in "Comptes Rendus." MM. Desprez and Balthazard describe experiments in which guinea pigs and a dog were enclosed in a limited quantity of air, together with a quantity of sodium peroxide, which decomposed in accordance with the equation $2Na_2O_2 + 2H_2O = 4\ Na\ OH + O_2$; the carbonic acid gas of the air being absorbed by the caustic soda formed. Parallel experiments were carried out without the peroxide, and it seemed to be proved that this substance was effective in keeping the air respirable. M. d'Arsonval points out that 17 years ago he devised an arrangement for the gradual evolution of oxygen as required, in a closed space, by means of an intermittent flow of hydrogen peroxide into chromic acid; the carbon dioxide being absorbed by soda lime.

BOILING POINT OF HYDROGEN.—Professor Dewar (in "Nature") has given an interesting account of experiments on high vacua obtained by the aid of liquid hydrogen. The absolute boiling point of liquid hydrogen is stated at 358, that is about 558 below that of oxygen, and theoretical considerations led to the conclusion that at the temperature of boiling hydrogen, the vapor tension of solid oxygen and nitrogen would be extremely small, so that the vacuum left after liquefying the air out of a vessel by means of liquid hydrogen cannot exceed the millionth part of the atmospheric pressure, exclusive of pressure due to any other difficultly condensible gases. This pressure is about the same as that of mercury vapor at ordinary temperature, so that the exhaustion might be expected to be better than that obtained with a mercury pump. This was found actually to be the case, and tubes so prepared offered such great resistance to the passage of the electric discharge, and displayed such high phosphorescence, that there can be no doubt the pressure actually was less than a millionth of an atmosphere; and this vacuum is obtained very quickly.

A BLAST FURNACE PROBLEM WITH ZINC.*

By William W. Taylor.

The iron ores of the Oriskany period, which are mined and smelted in the western counties of old Virginia, usually contain a small amount of zinc. The amount probably seldom exceeds 0.10 per cent. Trifling as this small percentage may appear, it often occasions great trouble with the furnaces using these ores. The zinc does not ordinarily leave the furnace in the cinder, nor does it, in good practice, escape with the issuing gases. Under normal conditions most of the zinc deposits on the cooler parts of the furnace walls as cadmia; while the remainder is carried over into the stoves and flues and under the boilers, and there deposited as impure, dust zinc-oxide. This fine material or dust zinc is of a loose, bulky nature, and can generally be easily removed by suitable brushes, etc.

The hard, stony cadmia, however, which attaches itself to the furnace walls, is by no means easy to remove, with a furnace in blast. The cadmia is a valuable by-product, and brings a fancy price from the zinc smelter. Following is a commercial analysis of this material: Metallic zinc, 73.00; silica, 2.50; ferrous oxide and alumina, 3.00.

A fractured face of the cadmia, or "zinc-ring," in appearance is similar to Lake Superior agate, the yellow and green banded effects, combined with its great weight, giving it striking characteristics. The conditions best suited to its deposit on the furnace walls are hard driving and the accompanying cold tops. In the early days of iron making in Virginia, when little attention was paid to economy in fuel consumption, and with slow driving, trouble from zinc was scarcely ever known. The zinc seldom accumulated sufficiently to interfere with distribution of the stock. In recent years, however, with hard driving and low

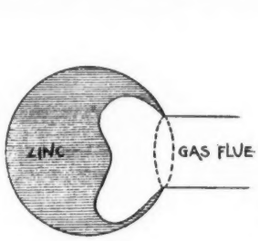


FIG. 1.

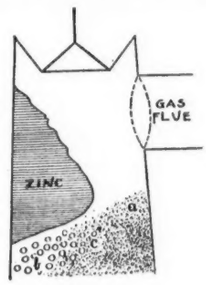


FIG. 2.

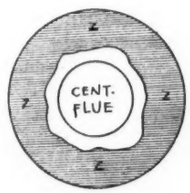


FIG. 3.

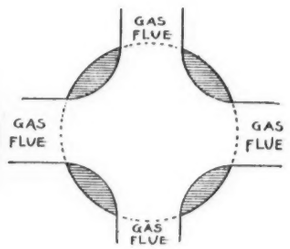


FIG. 4

ZINC IN THE BLAST FURNACE.

fuel consumption, often after only a few months' run the zinc will deposit on the upper walls of the furnace to such an extent as to seriously interfere with even distribution of the stock and consequently produce irregular working of the furnace. Not only this trouble, but there is constant fear lest the deposit suddenly break off and come down with the stock. Frequently this does happen and the effect is similar to what would happen were a huge block of ice to drop in front of the tuyeres. Constant dropping of the raw stock from the bell has weakened part of the ring. Suddenly it breaks off! The furnace making good, gray iron, in the morning, has now a silvery, brittle product at the 5 p. m. cast; or perchance if the quantity of zinc be large, it stops work altogether for a period.

At such a time, fumes of zinc oxide, that peculiar, greenish blue of burning zinc, are noted issuing from the open ends of the peep holes in the blow pipes. Occasionally metallic zinc will flow from around a tuyere, or go out with the cinder in a halo of smoke. A heavy coke blank is now needed to bring the furnace around. A few hours after, the trouble is usually over, for a while at least, the zinc runs out with the cinder, and the furnace gradually goes back on good iron, the only visible reminders being the piles of white brittle iron, the black heavy cinder and a deepening of the lines on the founder's face.

Fig. 1 shows the size and shape the "ring" sometimes assumes in a modern furnace. Less than half the volume of the furnace at the widest point of the ring is open for escaping gases. Note effect on stock distribution. Fig. 2 represents the probable relative positions of lump and fine materials charged, after the ring has assumed the size indicated in Fig. 1. Rounding lumps dropped on the bell would strike the ring and be deflected to a, here coming against the wall and again be deflected to b. The fine materials, however, would from their nature simply slide off the ring and remain at c. The charge, therefore, being more open at b, the furnace will drive harder on this side, producing slips and sticking, incident to one-sided working. There would naturally be a greater melting of the bosh walls on this side. This, in fact, is just what did happen in one case which came under my observation. The brickwork on the bosh was burned out in a large pocket, directly under the ring. The temperature of escaping gases from the furnace here represented was about 400° F., and the ring weighed 60 tons.

By the courtesy of the Longdale Iron Company I can here illustrate the form the ring deposit takes at their plant. The two Longdale furnaces are each fitted with a central tube gas flue. A far better and very able description of the ring in the Longdale furnaces has been published in Vol. 7, "Transactions" American Institute of Mining Engineers, by Mr. Firmstone. It is the custom of the Longdale Company to remove the zinc occasionally, with the furnace banked. The stock is allowed to settle, and after dumping in a few barrows of wet ore, the cadmia is cut off in sections, with tools for the purpose, and lifted out by a grapple invented by themselves for this use. The cadmia is sent down on the cage and sold to the nearest zinc smelter. Their ring seldom exceeds 12 tons in weight, and from its shape can easily be removed in sections. Furnaces, however, which have a gas flue at one side have a more difficult problem involved, as any attempt to break off the zinc by sections would meet with probable disaster. Pieces ranging from 20 to 30 tons are too heavy for a light tackle on a shaky hoist tower.

It will be noted by inspection of Figs. 1 and 3 that there seems to be less tendency for the deposit to form where the passage of the gases is the greatest. This being the case, if the gases were led from the top by four or more flues, meeting in a common down-corner, the zinc would deposit to a less extent in the furnace and that which did deposit could be removed in sections small enough to handle. The tendency would be to the formation of a ring illustrated by Fig. 4. It would probably confine the zinc to the spaces between the gas flues, and thus not seriously interfere with even distribution of the stock. Longer blast could probably be made with such a furnace, a larger burden carried, with more uniform results. When inspection showed the zinc had formed to any considerable amount, the furnace could be banked a few days, and the zinc removed in small sections, with little danger.

*From the "Cleveland Iron Trade Review" March 30th, 1899.

IRON MAKING IN CENTRAL INDIA.

A correspondent of "Indian Engineering" says that the smelting and working of iron according to the native method is carried on in Central India in eleven districts—Saugor, Damoh, Jabalpur, Mandla, Seoni, Narsinghpur, Chanda, Bhandara, Balaghat, Sambalpur and Raipur.

In Saugor there are six iron mines, which are open to all. These mines gave work during the past year to 1,844 persons. In Damoh the smelting and refining is done by blacksmiths, who purchase the ore at the cost of a rupee for 24 maunds. Such of the metal as is not used by themselves is retailed to purchasers from the Northwest Provinces, who convert it into cooking and other utensils for domestic use. The smelting process is crude, but effective, a kiln made in the ground serving the purpose with the most satisfactory results. While the smelters purchase their coal from the villages, it must be understood that they are exempt from Government dues. The landlord, however, levies a tax of 16 rupees per kiln per annum. This is in lieu of fuel, which the smelters obtain from the Malguzari forest.

At Jabalpur the average number of furnaces at work throughout the working months of the past year was 28. During the working months, from November to May, 21 men on an average are employed at each furnace. These include wood-cutters, charcoal-burners, ore-extractors, furnace attendants, refiners, bellowsmen and hammermen. A day's work varies from 33 to 50 seers of crude iron, locally known as "tickole" or "bloom," while the total amount turned out in the seven working months is about 275 maunds. The resmelting of this bloom gives pig-iron, which is locally known as "chandia." From 275 maunds of bloom, 220 maunds of pig-iron can be turned out.

While the actual process employed in the production of pig-iron is more or less the same at all the mining centers, it may not be uninteresting to learn that the Mandla District has 51 furnaces, which produced during the year 1897 a total of nine tons.

The smelting industry at Seoni, during 1897, came to a standstill owing to the plague; while in the District of Narsinghpur, which is by no means rich in ore, comparatively little was done. The mines, in fact, are on too small a scale to encourage the outlay of any capital. Whereas formerly in this district there were 50 furnaces employing 40 smelters, there are now just half that number of furnaces looked after by 16 smelters. This falling off is due in a great measure to famine, as also to the large mortality rate. Add to this the introduction of English-made articles, and the reason for the decrease in the iron industry of the Narsinghpur District is explained.

In the District of Chanda, mining operations, on a similar scale to the foregoing, were carried on during 1897 in five separate localities. The ore being quarried in big lumps, was afterwards broken up into pieces of convenient size and stacked in heaps for further use.

The methods adopted in the other mining centers were similar to those carried on in the mines to which reference has already been made; and with certain minor variations in the cost of transporting fuel, and of labor generally, the same may be said of the smelting operations carried out at Bhandara, Balaghat, Sambalpur and Raipur.

ELECTRIC POWER TRANSMISSION IN CONNECTICUT.—The Ousatonic Power Company of Derby, Conn., is preparing to erect a dam at Zoar Bridge on the Housatonic River, to be 400 ft. long and 35 ft. high. It is expected that the river will furnish about 20,000 horse-power. This power will be utilized for the distribution of electric light, power and heat through New Haven and Fairfield counties. It is proposed to feed with the power thus generated, New Haven, Bridgeport, Waterbury, Danbury, South Norwalk and other towns and cities of lesser importance. Work will be begun on the plant this Summer, and the projectors expect to be able to transmit the power without material loss over a distance of at least 30 miles.

COPPER RESOURCES OF CALIFORNIA.

1.—THE IRON MOUNTAIN MINE, CHASTA COUNTY.

Written for the Engineering and Mining Journal by Herbert Lang.

(Concluded from page 442.)

The matter of securing an adequate supply of fluxing quartz ores at first is of immense importance to a concern situated as the Mountain Copper Company is. By delaying until the neighboring property owners have discovered the necessity of such ores, the new company is placed at their mercy, the price of suitable claims goes up out of all reason, and the impossibility of rectifying the omission at the late date cuts off the profits which prompt action might have secured. The purchase of fluxing ores as a custom business is a makeshift which involves a great deal of careful sampling, results in friction, and produces a very unsatisfactory supply, too limited and uncertain to be relied upon. In such cases a great deal of barren flux has been smelted, as at Keswick, in default of ore which would have yielded a good smelting charge if the matter had been properly handled. The rest is secured by the payment of practically all the gold and silver in it, without reserving a treatment charge. My plan contemplated the quartz as ore which must yield a profit, and I proposed to use as much as possible of it. The other view regards it as flux only, of which it is desirable to use as little as may be, since the cost of handling in this manner incurs a distinct loss with every pound smelted. More fundamentally I regard the Keswick concern as a mining and smelting company ready to handle anything so long as there is money in it; others regard the company as purely a copper company, concerned only with obtaining that metal, and not desirous of going into gold or silver extraction or anything else but copper, and willing to obtain its flux in small quantities and on hard terms, and disregarding the prospect of making money by the smelting of quartz. My expectation was that an aggregate profit of $1,000,000 would have been made by the treatment of the amount of quartz mentioned, it being fair to presume that $3 per ton on the average would be the net outcome. The practice of buying silica merely as flux cuts off this source of revenue entirely. Figured on the Iron Mountain sulphides, the cost of barren flux would reach, at $2 per ton for quartz delivered, some 60c. per ton on each ton of ore smelted from that mine. As it is, the company's operations afford infinitely the best means of beneficiating the quartz that Shasta County miners ever had, and they are taking full advantage thereof, and it may be better for the community that my suggestions were not acceded to, inasmuch as the profits are distributed among the miners of that vicinity.

2. Another fact is the existence of cheap and abundant power, derivable from the Sacramento River at a point 15 miles away, and transferable to the works by electric transmission. I proposed the use of 1,500 H. P. for the various reducing operations, which, as stated heretofore in the "Engineering and Mining Journal," embraced pyritic smelting, air conversion of the matte, and electrolytic refining of the copper. Taken in connection with the scarcity and high price of fuel (coke costs $13 and coal $8 per ton, and wood $3 per cord), the cheapness of water power favored this course. The production of refined copper can be carried on as cheaply in Shasta County as elsewhere in the world. Freight from Keswick to New York by rail is at the lowest $15 per short ton of matte, and $20 per short ton of blister or refined copper. It is therefore out of the question to ship copper matte profitably, especially of ordinary or low grade, the only thing to do being to carry it forward to the metallic state, whereby there is a saving of fully 1c. per lb. of metal over shipping matte of 40 per cent., the usual quality sent from this coast.

It was found that the pyritic process was eminently adapted to the treatment of mixtures of the sulphides and oxides of this mine, plus the quartz necessary to flux them. Such a mixture would contain the oxidizable sulphur and iron to furnish most of the necessary heat, as well as the silica and oxide of iron to make up a desirable slag for the blast furnace. The iron of the limonite ore being in the ferric form had to be reduced to protoxide before combining with the silica, and this is effected as perfectly by the agency of the sulphur in the pyritic furnace as by the carbon in the ordinary smelting methods. Taking the price of coke as at Keswick, I estimate that it would require nearly 50c worth to perform the reduction of the iron in a ton of the oxidized ore to the protoxide form in the ordinary process, besides what would be required for the fusion. The pyritic method undoubtedly has great advantages in the treatment of such mixtures, and I am inclined to believe that it is in dealing with this class of ores that its principal field will be found to lie. I may say that people generally are much mistaken about the amount of sulphur necessary in order to enable a charge to be economically smelted by this process. I have even been asked if 35 per cent. of sulphur in a mixture was enough. In answer to such interrogatories I invariably reply that from 15 to 25 per cent. gives the best results when we consider the saving of fuel and the degree of concentration reached. The work at Keswick demonstrated that the mixture could be successfully treated in the pyritic furnace with hot blast with an expenditure of but 2 per cent. of coke, and at a cost of but $1.63 a ton of ore. It should be borne in mind that in this calculation the term ore means not only the sulphides and oxides, but the quartz necessary to flux them. I state this particularly because interested parties for purposes of their own have endeavored in this connection to restrict the word ore to the sulphides alone—a manifest perversion of common sense.

The work at Keswick suggested a great many improvements and simplifications of the method and apparatus, which have proven of value subsequently. The supposition was that a rate of concentration of 6 into 1 could have been effected, which would have given rise to a 40 per cent. matte in the first operation; but it was found that such a rate of concentration of the sulphides was impracticable. This being the case, it would have been necessary to roast and resmelt the first matte, whereby it could have been brought up to 50 or 60 per cent. copper, which is a very good material for bessemerizing. It could then have been blown to blister and cast into anodes without allowing it to cool and lose the heat which it had absorbed in the second smelting. This work was interrupted at Keswick, and it remained for Mr. Sticht, acting upon exactly similar lines at Mount Lyell, to demonstrate the entire feasibility of the process or rather combination of processes here mentioned.

A reactionary spirit has characterized the company to some extent, and it has returned to the old and safe, if somewhat crude and wasteful, methods of a past generation. The practice now is to roast the ore in heaps as it comes from the mine, then smelt the imperfectly roasted material in water-jacketed blast furnaces, getting a matte of 40 per cent. copper, more or less, which is shipped to the Atlantic coast and refined there. The matte is brought forward to blister in the New Jersey Extraction Works, at Elizabeth, N. J. Anodes are produced which are or were sent to the Balbach Works at Newark, and there converted into marketable copper by the electrolytic process. Thus three separate establishments are concerned in the production of Mountain Mines copper. The matte, of which over half is worthless sulphur and iron which ought never to leave Keswick, pays a freight rate of $15 per ton (in 1896) which is nearly 2c. on a pound of copper. Notwithstanding these and other costs, and wastes and losses, the company pays regular dividends amounting to 5 per cent., or thereabouts, on its capital stock of over $6,000,000, which indicates a net profit of from $2 to $3 on each ton of ore treated. But the gold and silver in the ore amount to this whence it appears that the copper in the ore just pays the mining smelting and other costs, leaving the precious metals to pay the dividends. This is a very interesting deduction indeed, and affords us an opportunity of drawing some valuable comparisons between the practice of this and other mines. Bearing in mind that at Keswick the average grade of ore treated has been from 7 to 10 per cent., the impolicy of dividing up the work among three different establishments will be understood.

Metallurgy as a science owes nothing to the Mountain Copper Company. It is rather a pity that a concern able in all respects to keep up with the times should carry on its work in the manner referred to. More than 200 tons of sulphur are burned from the ore daily and suffered to drift with the atmosphere over the Upper Sacramento Valley, to the detriment of agriculture, while it would be perfectly easy to obviate in large part the evils of the smoke by conveying it in underground flues to the top of a neighboring elevation, and then discharging it into the air at such a height that it would not reach the ground again in a concentrated and injurious form. But this would be inconsistent with the practice of heap-roasting, in which the gases escape close to the ground and at a low temperature.

To those who are conversant with these matters, the most striking features in this description will be: First, the length of time that this wonderful deposit remained unworked though well known; second, the great extent and exceptionally high grade of the ore body; third, the crudity and wastefulness of the reduction methods; and finally, the small profits which accrue from the working.

THE ASSAY OF TELLURIDE ORES.

In a recent paper in the "School of Mines Quarterly" (Volume XIX., No. 4), Mr. Charles H. Fulton, after describing a number of experiments, makes some recommendations based upon the results obtained.

It is proved, he thinks, that the crucible assay is much the better for telluride ores. It is evident that a large excess of litharge is necessary to obtain good results in assaying a telluride ore. The amount will vary with the richness of the ore, the proper proportion of litharge to ore being maintained in a rich telluride by decreasing the quantity of ore. A definite ratio of litharge to gold for telluride ores might be established.

The loss of gold in the crucible slag is many times more than that in assaying ordinary ores, and justifies the making of corrected assays when accuracy is required. The loss of gold in cupellation which is recoverable, is not of much moment.

Scorification of any kind is bad for a telluride ore, whether it be direct scorification of the ore, or the rescorification of brittle or large buttons. The loss on cupelling a large or brittle button directly is much less than if it were first rescorified. The amount of gold lost in the scorification slag when scorifying ore directly is very great, amounting to 5.6 per cent. The highest uncorrected result also gives the highest corrected result, showing that loss takes place by volatilization. The loss of gold in a rich telluride is greater than in a low grade ore, but the percentage of loss decreases with the richness of the ore.

In general, the crucible assay is best, by far, for telluride ores. The fire should be moderately hot, the length of time in the furnace, from 40 to 50 minutes. The assay should be conducted, so as to give a button of good size, from 20 to 28 grams, which can be cupelled directly. The cupellation should be made at a low heat with crystals of litharge forming on the cupel. When the assay is to be accurate, the crucible slag should be remelted and button cupelled and the resulting gold added to the first assay.

COAL IMPORTS IN CHILE.—Messrs. Jackson Brothers, of Valparaiso, state the imports of coal into Chile last year as below, in long tons:

	Steam coal.	Smelting coal.	Totals.
English	243,248	8,599	251,847
Australian	270,085	42,763	312,848
American	10,608	.....	10,608
Total, 1898	523,941	51,362	575,303
Total, 1897	476,061	57,818	533,979

Of the total imports Australian coal formed 54.4 per cent., English 43.8 per cent., and America only 1.8 per cent. The proportion of American coal might be increased with advantage.

A PROSPECTOR'S DENSITY RULE.

By J. Holms Pollok.

The determination of specific gravity dates from such antiquity, and the various published methods of determining it are so numerous, that one may well be skeptical as to the value of a new means of obtaining so well-known a quantity. I make no claim to any great novelty for the little device here described. My desire is to render a service to explorers and prospectors, to whom any convenient means of determining the nature of the minerals they find are of the greatest possible value. Now the color, crystalline form, hardness and density go a long way towards such determinations, and, with the exception of the last, can be ascertained by observation and the use of a little box (that need not be larger than a pocket match-box), containing the specimens which represent the scale of hardness. The determination of density, however, has necessitated hitherto the use of a balance or other cumbersome apparatus; and my purpose is to replace this by a very light and convenient little instrument, no larger than a pencil, that may be carried in the pocket without inconveniencing the traveler.

A three-sided ivory rule, 21 cm. long and 0.5 cm. in width of side, is engraved on one side with a centimeter-scale, from 0 to 10 at the center, and again from 0 to 10 from the center to the other extremity, leaving 0.5 cm. over at each end. On another side is a scale of density, constructed, so that the value at any point is always obtained by dividing the whole length from the center to the extremity by the distance from this point to the extremity. In the center of the rule is drilled a hole, through which a cord is passed; and the rule must balance when suspended by this cord, with the two engraved scales upward.

A brass bob, 10 grammes in weight, is made so that it can slip on the rule. It has two openings to permit the reading of either scale, and at the center of each of these openings is an index-mark, which must also be at the centre of weight of the bob.

To make the density determination, select a specimen somewhat over 10 grms. in weight; place the brass bob with the index-marks at zero on the density and millimeter-scales; suspend the specimen by a horse-hair or silk thread from the other arm, at any point where it will exactly counterpoise the bob, and fix it there, which may conveniently be done by having a running loop on the horse-hair. Now immerse the specimen in water, and move the brass bob back until it again counterpoises the specimen. On the density scale the index of the bob will show the density of the specimen with accuracy to the first place of decimals for any ordinary specimen, from a density of from 2 to 5. From 5 up to 10 it will read to half a unit; and thereafter it is only approximate, but will show roughly, for instance, whether gold be "good" or "bad" in fineness.

TABLE I.—*Graduations for a Density-Rule.*

Specific Gravity Mark.	Distance from the End in Centimeters.	Specific Gravity Mark.	Distance from the End in Centimeters.
1.1	9.091	.4	2.941
.2	8.333	.6	2.778
.3	7.692	.8	2.632
.4	7.143	4.0	2.500
.5	6.667	.2	2.381
.6	6.250	.4	2.273
.7	5.882	.6	2.174
.8	5.555	.8	2.083
.9	5.263	5.0	2.000
2.0	5.000	.5	1.818
.1	4.762	6.0	1.667
.2	4.545	.5	1.538
.3	4.348	7.0	1.428
.4	4.167	8.0	1.250
.5	4.000	9.0	1.111
.6	3.846	10.0	1.000
.7	3.704	12.0	.833
.8	3.571	14.0	.714
.9	3.448	16.0	.625
3.0	3.333	18.0	.556
.2	3.125	20.0	.500

TABLE II.—*Densities by the Rule and by Weighing.*

Specimen.	Specific Gravity by the Rule.	Specific Gravity by Weighing.
Blende	4.0	3.93
Magnetite	5.0	4.84
Galena	8.0	7.45
Quartz	2.6	2.63

The principle is obvious. If the bob, whether it be of 10 grms. or any other arbitrary weight, counterpoise the specimen when at some fixed point on the other arm, and, after moving inward, again counterpoise the specimen when immersed in water, obviously the distance that the bob is moved inward represents the loss of weight in water; and this distance bears the same ratio to the length from the center to the extremity of the scale as the weight of an equal bulk of water bears to the weight of the specimen. If the specimen tested weighs less than 10 grms., sufficiently accurate results can be obtained by using any little pebble suspended from the other arm as a counterpoise in place of the brass bob.

Table I gives the position of the points that should be engraved on the density scale in centimeters from the end of the scale, and will be of us, to any one making an accurate scale with a dividing-engine. Table II gives a few densities taken by the rule, and also accurately determined by a more elaborate method, from which it will be seen that the former determinations are close enough to satisfy the requirements of a prospector, especially when it is considered that they can be made with ease at the rate of more than six in a minute.

Fig. 1 shows the position of the specimen and bob at the moment of the final weighing in water after the bob has been moved into its new position. In Fig. 2 the scale on one arm of the rule, drawn to actual size, is also given for the convenience of those who desire to make a rough scale of the kind and have not the means at hand to get it accurately divided.

*Paper read before the American Institute of Mining Engineers at the New York meeting, February, 1899.

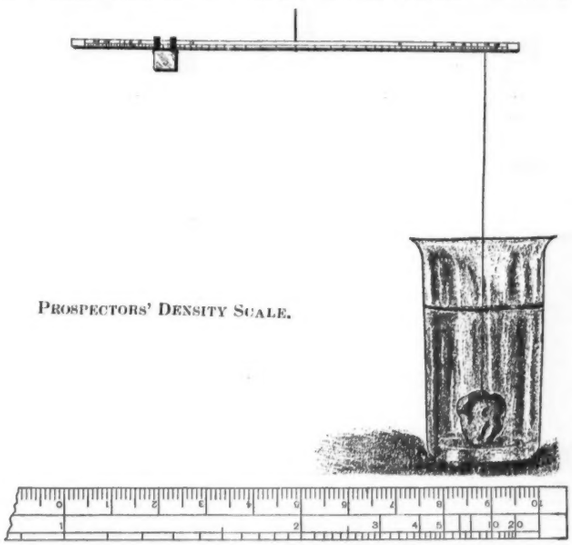
RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

BUYER NOT LIABLE FOR PRICE PAID TO ONE FROM WHOM HE BOUGHT.—A party ordered coal from a dealer, who contracted with others to fill the order, he to receive a commission from them. The buyer, who was ignorant of this agreement, having paid the price to the dealer on delivery of the coal, was held not to be liable to pay the parties who had furnished it.—Carroll vs. Benedictine Society (41 Atlantic Reporter, 784); Supreme Court of Maryland.

LIABILITY ON LEASE OF MINING PROPERTY.—Lessees, under a sealed instrument, of an iron mine, were to pay as rent a royalty on the ore mined, and a certain royalty, whether ore was mined or not, and also taxes. They never demanded or took possession, and lessor never tendered the mine, but kept possession, and took out some ore each year of the lease. The president and secretary of the lessor company, before the lease commenced, sought a loan of the lessees, which was refused, and the former said: "If you don't make the loan you can't have the mine," to which the leseees replied: "Well, we can do without the mine." There was no proof that the former were acting on behalf of their company, or had authority to refuse possession. No rent or royalty was demanded until suit was brought, two years after expiration of lease. It was held that there was no refusal of possession or surrender or lease and acceptance relieving lessee of its terms.—Millie Iron Mining Company vs. Thalman (54 New York Supplemental Reporter, 276); Supreme Court of New York.

WHAT CONSTITUTES ABANDONMENT OF OIL LEASE.—A party leased certain premises to a company for the purpose of drilling and operating for oil and gas. It was agreed that lessee should drill two wells, the first to be completed in one year and the other in two years. If the latter produced sufficient gas to enable it to be utilized, the consideration in full for it was to be a specified annual rental. In case of delay in completion of two wells, the annual rentals were to be accepted in full consideration for the delay. The lessee drilled the first well, and obtained gas, which was used and paid for during more than two years, when the well and casing were plugged and the rig taken down. Lessee never drilled the second well, nor had it paid anything for its failure to do so. This was not held to be abandonment of the lease.



PROSPECTORS' DENSITY SCALE.

The lessee had no right to abandon the leasehold, even if the first well was a failure, as it had expressly contracted to drill two wells.—Ahrens vs. Chartiers Valley Gas Company (41 Atlantic Reporter, 249); Supreme Court of Pennsylvania.

A COAL MINE EXPLOSION.

In a note published in the "Revue Universelle des Mines," December, 1898, F. Buttgenbach discusses the causes of the great explosion at Carolinengluck in Westphalia in February, 1898. This accident caused the death of 120 miners, who at the time were working on a level 200 m. below and at a distance of nearly 1,000 m. from the point where the explosion took place.

In examining this accident reference is made to the experiments of Dr. Hallane, who proved in his report that suffocation can be produced by carbonic oxide existing in the air in as small a proportion as 1.8 per cent. When air contained this quantity of CO, men breathing it became insensible in 8 minutes and died in from 30 to 40 minutes.

After considering all the facts M. Buttgenbach concludes that the deaths at the Carolinengluck Colliery should be attributed to carbonic oxide produced by the burning of coal dust in suspension in the air;

the dust being inflamed by the gas which the action of strong ventilating currents carried to all parts of the mine.

Considering these results the author asks at what point should the velocity and volume of the air currents be checked? He also recalls the note on this subject by Herr Kohler, of Clausthal, proposing that oxygen be forced into the workings immediately after an explosion. This is hardly considered a practical plan. The author is not favorably impressed by the plan of sprinkling the galleries of the mine to settle the coal dust and prevent it from taking fire, though that plan is in use in England and Germany.

ABSTRACTS OF OFFICIAL REPORTS.

Franklin Mining Company, Michigan.

This company's report covers the year ending December 31st, 1898. The work was practically only for 11 months, the mill having been destroyed by fire on November 27th. The mine produced 3,300,511 lbs. mineral, which yielded 79.49 per cent., or 2,623,702 lbs. of fine copper. The total amount of rock hoisted was, from the old mine, 79,786 tons; from Franklin Junior, 47,235 tons, or a total of 127,021 tons. The total amount stamped in 11 months was 116,696 tons, or 15,330 tons less than in 1897. The percentage of mineral in ton stamped, including mass and barrel work, was 1.41. The percentage of fine copper in ton of rock was 1.12. The amount of mass and barrel work was 807,950 lbs.

The statement of earnings and working expenses gives the following result:

	Total.	Per lb. copper cents.
Sales of metal	$316,709	12.07
Interest	1,209	0.03
Total	$317,918	12.10
Mine expenses	206,413	7.86
Smelting, freight, etc.	40,018	1.52
Total	$246,431	9.38
Net earnings	$71,487	2.72

The income account is as follows:

Mine receipts, as above		$317,918
New stock, 40,000 shares		400,000
Total		$717,918
Mine expenses	$246,431	
Franklin Junior, new work	198,618	
Stamp mill	97,275	
		542,324
Surplus at close of year		$175,594

The total amount expended on account of the Franklin Junior up to the close of the year was $522,330.

The directors' report says that exploratory work in the old mine has been pushed the past year with gratifying results, and there is, above the twenty-third level, in a part of the old mine which was considered of no value, some 25,000 tons of rock on the stulls ready for hoisting, and enough ground opened to produce 300 tons per day, for the next three years, from the openings now made; and there are several levels lower to be opened. There is a large body of unexplored ground above the twenty-eighth level, and if it proves good the old mine will last from five to ten years longer. The percentage of copper has materially improved of late.

At the Franklin Junior work has been pushed in the way of opening the mine, in order to have rock enough to supply our new mill when ready; and on December 31st, 1898, there were openings of 7,378 ft. in length; a great portion of the rock in sight will pay to stope and send to the mill for treatment.

The cost of stamping was reduced from 54 cts. per ton in 1897 to 51.02 in 1898, and the cost of handling rock per ton from $1.82 in 1897 to $1.60 in 1898. The cost of stamping was very high when compared with modern mill cost, and it can be reduced to one-half or less when the new mill is in complete running order. The new mill is progressing favorably. It is built of steel and iron, wherever the same could be used, and is as near fireproof as possible. The location is good, and there is sand room enough, without fear of any interference from any one, to last more than a generation.

The underground workings are confined to the lode known as the Pewabic, the same lode worked by the Quincy, Pewabic, and Franklin companies for so many ears—this at both the old mine and the Junior. In addition to this the Kearsarge, Osceola, Calumet, and other lodes cross the property at about the same length and depth as the Pewabic; and some of them may, on exploration, prove valuable, particularly the Kearsarge or Osceola. A small exploration was made on the Kearsarge a while ago; but although nothing of value was found in the shaft, the lode was located beyond a reasonable doubt, and at proper time further openings will be made, and the lode proved up. In the great crosscut made at Franklin Junior a few years ago, the length of which was 2,633 ft. at a depth of some 250 ft. from the surface, over 20 lodes were crossed, none of which showed value at the crossing; some, however, looked favorable for copper bearing, and may in the future be explored to prove them up.

Authority was given the directors at the last annual meeting to sell the old mine. Nothing definite has been done in this direction, as the directors are satisfied from the present showing there that it is better to continue working the mine for product than to sell the property now.

The new mill is expected to be in full running order in May, to treat about 1,000 tons of ore per day; about 30 days later to increase by one-third, and a short time later five heads ought to be at work capable of treating at least 1,500 tons per day.

United Alkali Company, Limited, Great Britain.

At the eighth annual general meeting of this company in Liverpool, March 17th, Mr. John Brock (chairman of the Board of Directors), made reference to the duties imposed on the company's goods exported to the United States and to most of the countries of Europe. The important trade with the United States in alkalies alone has been reduced to very small proportions in comparison to what it was. In 1895 the exports of soda ash from the United Kingdom to the United States amounted to 125,698 tons, while in 1898 they fell to 29,323 tons. The exports of caustic soda in 1895 to the United States amounted to 33,625 tons, and in 1898 they were only 11,171 tons. The American manufacturers have largely increased production, and not only supply the home demand, but have a surplus for export. And the United Company has to meet the same state of things all over the continent of Europe. In speaking of the trade in bleaching powder, Mr. Brock said: "We have not only these high duties to face, but opposition of another kind, provided for our special benefit. I mentioned last year the fact that a syndicate of German manufacturers had bought up the whole production, without limit of quantity, over three years, of the bleaching powder made by an electrical process in this country, at a fixed price, and was offering it against us in the home market very much below what they had given for it, for the express purpose, as they phrase it, of 'keeping us in order;' in other words, to endeavor to induce us by a system of reprisal to keep our goods out of the Continental markets. This transaction of the German syndicate, which has still some 18 months to run, has caused a reduction in the selling price of bleaching powder over the year 1898 of from 20s. to 30s. per ton, and has in fact cost us last year a sum of money sufficient to have paid our ordinary shareholders a moderate dividend on their holding. The circumstances I have named are matters over which we have no control whatever. They are not matters of new processes or old, of economical working or otherwise. Costs cannot possibly be reduced sufficiently to make up for a duty of £11 13s. 4d. per ton on an article which sells at about £30 per ton. The only way to retain our trade is to have an interest in manufacturing in the protected country. This we have done."

Concerning the American works, it was announced that a company has been formed and located at Bay City, Michigan, called the North American Chemical Company, in which the United Alkali Company has a controlling interest. These works, primarily established for the manufacture of chlorate of potash by electrolysis, began operations about November of last year, though not yet working at their full capacity. Having started manufacturing so late in last year they do not contribute anything to the profit side of the present balance-sheet.

During the year an extension of the plant for the manufacture of cyanides and fertilizers was undertaken, which will be in full operation in the present year.

The arrangements made with other manufacturers of alkalies worked satisfactorily during the year, and have been the means of steadying prices and preventing violent fluctuations. The chairman then stated that it was the company's desire to multiply the articles it manufactures in order that it may have a steadier business return, and avoid undue dependence upon one or two articles.

In referring to the cost of production and maintenance, the chairman said:: "We have given unremitting attention to the question of cost of production in every department, knowing well that this is a vital point and at the very foundation of profit earning, and of our being able to hold our own under the severe competition we have to meet. We have kept our works in a thorough state of repair and efficiency, the cost of which has been defrayed out of revenue. Turning to the accounts, the share capital and debenture stock remain the same in amount as before. The debts owing by the company are £237,569, or £30,159 less than last year. The reserve fund account remains the same as last year. On the other side of the account we have additions to property, plant freeholds, etc., at £29,131, which, after deducting the amounts realized by sales of obsolete plant and property, and the amount written off for depreciation l eaves that account at £7,179,048, as against £7,211,786 last year. The stocks of manufactured products, raw materials, stores, and other articles have been carefully valued, and written down when necessary, to meet the fall in values during the year. They stand at £786,835, or £46,123 less than last year. The debts owing to the company amount, with the outstanding consignments, to £399,519, or £71,586 more than last year. Money on deposit at the bank and investments amount to £322,856. Cash in hand at head and district offices, with bills receivable, amount to £12,527. The profit and loss account shows that the gross profit, including interest on investments and transfer fees, has been £374,452, or £14,078 less than last year. The net profit, after payment of debenture interest and all other charges, is £198,263, against £213,364 in 1897." There were carried forward £29,297, and a dividend of 7s. per share was declared on the preferred stock out of the profits for the year ending December 31st, 1898. This dividend, with the interim dividend paid in August last, makes 7 per cent. for the year. There was also written off for depreciation of works £650,000.

THE CAMBORNE SCHOOL OF MINES.—About a year ago the School of Mines at Camborne in Cornwall bought the old South Condurrow tin mine, and is now making many improvements in the property. The object is to use the mine in the practical instruction of students, and also to show what can be done with the mine under intelligent management, and with improved methods and machinery.

COAL IN THE TRANSVAAL.—The report of the State mining engineer shows that during the quarter ending December 31st, 1898, the coal shipped was as follows: Block coal, 504,522 long tons; nut, 415,194; slack, 6,650; total, 491,580 tons. The number of men employed at the close of the year was as follows:

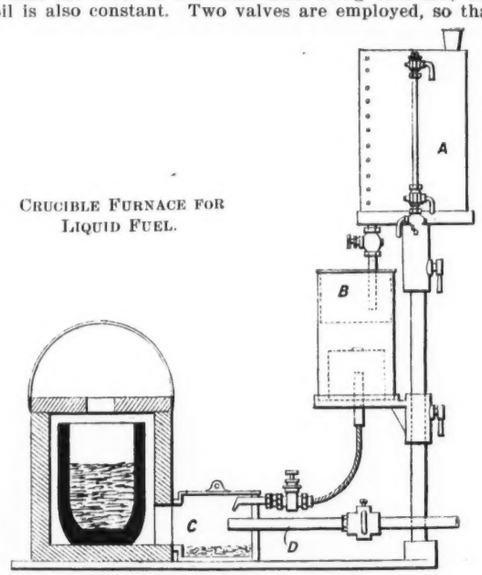
	White.	Colored.	Total.
Underground	109	4,326	4,435
Above ground	258	2,660	2,918
Totals	367	6,986	7,353

For the year ending December 31st the total coal mined in the Transvaal was 1,907,808 long tons, against 1,600,212 tons in 1897; an increase of 307,596 tons, or 19.2 per cent. The average price reported at mines last year was $1.68, which compares with $1.84 in the preceding year.

A LIQUID FUEL CRUCIBLE FURNACE.

The furnace which is the subject of a sectional drawing herewith, is intended primarily for brass melting, but the temperature attained is sufficiently high to make it available for materials with higher melting points. The makers claim that the cost is much less than that of melting in crucibles by coke. The furnace is, moreover, much more cleanly than a coke furnace, and split brass can easily be reclaimed when the apparatus is cold, so that there is a further saving in that direction.

Unlike most heavy oil burners, only a small air pressure, such as can be readily drawn from the smith shop mains, is required. The action is simple, and will be at once understood from the drawing. The upper vessel marked A contains the main oil supply. From there it falls by gravity through the cock shown, into the filter vessel B. The cistern A being air-tight, the level in B is always the same; that is to say, it just covers the mouth of the vertical tube. From B the oil descends through the filters, passes into the small pipe shown, through a valve just beneath B, not indicated in the drawing, then through a second regulating valve, and out by the down-turned nozzle. The air blast enters by the tube D, which has a hole at the end and a slot underneath. As the oil trickles over the tube it is blown by the air issuing from the slot to the bottom of the combusion chamber, where it is partly vaporized and partly burned. The resulting flame and gases issuing by the orifice circulate round the crucible, where combustion is completed, and the waste gas passes out through the hole in the lid. When a complete charge cannot be packed in one crucible, a second clay warming cylinder is used to prepare the extra amount. This crucible is placed upon the hole in the lid, and it is generally found that the metal in it is the first to melt—presumably because it is smaller in quantity. It will be observed that the level in the filter tank being constant, the rate of flow of oil is also constant. Two valves are employed, so that adjustment may be made with the lower, leaving the upper open full; then if it is desired temporarily to arrest the action of the furnace, the upper only is turned off without interfering with the adjustment, so that an immediate start may be made again without trouble. The Bickford Burners Company, of Camborne, Cornwall, which makes this furnace, has found that slide valves are quite useless, as the slightest shock to the spindle, or even the vibration of the furnace itself, is sufficient to destroy the adjustment. For this reason the apparatus is supplied with cocks instead of valves.



CRUCIBLE FURNACE FOR LIQUID FUEL.

As there is no passage less than ¼ in. diameter, the apparatus is quite free from the choking so frequent in small spray burners, and as whatever vaporization takes place is effected in a large combustion chamber in the presence of air any non-volatile constituents of the fuel are immediately burnt, overcoming the caking difficulty.

COKE IN WESTPHALIA.—The total number of coke ovens in operation in Westphalia at the beginning of the present year was 8,082, of which 2,100 are arranged for by-product recovery; and the coke production has doubled in ten years. Last year the ovens belonging to the Westphalian Coke Syndicate produced 6,415,683 tons; those of three works not forming part of the syndicate, 163,154 tons; and those attached to iron works, 751,483 tons. This makes a total of 7,374,320 tons, valued at 96,000,000 marks (£4,800,000) against 6,871,557 tons in 1897, showing an increase of 502,763 tons, or 73 per cent. The increase in the production of the ovens controlled by the syndicate was, however, only 6.2 per cent., against 8.2 per cent. in 1897, as compared with 1896. The above figures, moreover, fall a little short of the total production attributed to the ovens, the restriction having been 3 per cent. in January, 11 per cent. in April, about 8 per cent. in May, June and July, and 1 per cent. in December, owing, first to the slightly diminished iron production, but from October entirely to the deficiency of coke and coal, because nearly all of the ovens worked up to the limit of their capacity. Last year's report of the Westphalian Coke Syndicate, which gives the above particulars, is accompanied by several graphic diagrams, one showing a map of Europe with the coke deliveries from the Syndicate figured in thousands of tons, and another, showing the Lothringen-Luxemburg iron ore district, with its consumption of coke from the Ruhr, Belgium, the North of France, the Saar and the Aachen district during the last four years.

QUESTIONS AND ANSWERS.

(Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered.—Editor E. & M. J.)

Niobium—Columbium.—I see these metals are quoted in your tables at a high price. I have some in my possession, and would like to know if there is any market for them?—W. & A.

Answer.—There is no market for these substances, which are among the rarer elements, for which no special use has been found as yet. No considerable quantity can be sold.

Mercury Chloride.—Where can we obtain a quantity of crude mercury chloride—we mean the ore?—K. R. W.

Answer.—We do not know of any occurrence of quicksilver as a chloride in the United States. A very small quantity is found at Idria, in Austria, in connection with the sulphide; and in the same way it is occasionally found at the Almaden Mines in Spain. It is of rare occurrence in nature, however, and we fear that it will be difficult to obtain any great quantity.

Fluorspar.—Where is fluorspar quarried, and what is it worth a ton?—J. C.

Answer.—Fluorspar is found in the United States, chiefly in Southern Illinois and Kentucky. One large quarry is at Rosiclare, in Illinois, but this was closed down recently. The Fluorspar Company, of St. Louis, has a quarry in Hardin County, Illinois. Some is quarried also at Marion, Kentucky, across the Ohio River from the Illinois deposits, but in the same formation. The production in 1898 was 8,000 short tons, the value at quarry averaging $6.60 a ton.

Federated Institution of Mining Engineers (Great Britain).—I understand this to be an English body of mining engineers; can you give me the address of the association?—H. W. E.

Answer.—The Institution of Mining Engineers—it has within a year past dropped the "Federated" from its official title—differs in organization from our American Institute. It is, as the old title implied, a federation of a number of local societies, each of which has its complete organization and sends delegates to the general council of the institution. It has also its general meetings. The subordinate associations are the Chesterfield & Midland Counties Institution of Engineers; the Midland Institute of Engineers; the Mining Institute of Scotland; the North of England Institute of Mining and Mechanical Engineers; the North Staffordshire Institute of Mining and Mechanical Engineers; the South Staffordshire & East Worcestershire Institute of Mining Engineers. The proceedings of all these societies are published in connection with those of the general body. The secretary of the institution is Mr. M. Walton Brown; his address is Neville Hall, Newcastle-upon-Tyne, England.

Minerals Accompanying Gold.—1. Where can I obtain a list of the mineral substances accompanying gold in mining, chemically combined and otherwise, and the specific gravities of such substances?

2. Where can I obtain a list of the non-mineral substances that go to make up the gangue generally accompanying gold in mining throughout the world, and their specific gravities?—W. H. C.

Answer.—1. One of the best articles on minerals which accompany gold, giving a great deal of information in condensed form, is a paper written by Mr. T. A. Rickard, and published in the "Engineering and Mining Journal," April 23d, 1898, page 494. See also "The Mineral Industry," Volume VI., on telluride gold ores.

2. As to the gangue rocks most frequently accompanying gold-bearing veins, you can obtain information from the standard works. We suggest Kemp's "Ore Deposits of the United States (price $4); Osborn's "Practical Manual of Minerals, Mines and Mining" ($4.50); Stretch's "Prospecting, Locating and Valuing Mines" ($2.50).

As to the specific gravity of the different minerals which may occur in connection with gold, you can obtain them in Dana's "Mineralogy," or in any of the standard text-books.

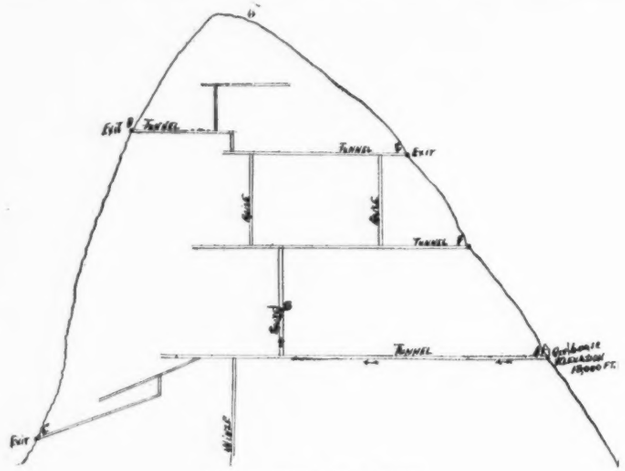
Uranium.—Can you give me the location of uranium mines, the character and prices of this rare mineral?—C. P. M.

Answer.—Uranium ore, the most important variety of which is pitchblende, is not very common, but is found in several localities in this country. Most of the ore so far taken out has been from the Wood Mine and the Kirk Mine in Leavenworth Gulch, near Black Hawk, in Gilpin County, Colorado. The ore is found there in connection with other minerals, in small pockets or bunches. Uranium ore has also been found in Law-

rence County, South Dakota. The ore there is autunite—phosphate of lime and uranium—of too low grade to be profitable. Ores of this metal may exist elsewhere in the United States, but they have not been in sufficient demand for any systematic search to be made. In other countries, pitchblende is found in Saxony and in Bohemia in connection with silver lead ores. It is also found in Cornwall, England. Some uranium has also been found in the Argentine Republic.

As to price, it would depend entirely upon the grade of the ore and to some extent also on the location where it was found. The market is too small to furnish any regular standard of price.

Air Currents in a Mine.—Causes of Disappearance of Current.—For several weeks past I have had in the mine a very strong current of air, so that lanterns were needed to keep a light, going in or out. This air enters the tunnel at A, goes up the raise to B, in the accompanying diagram, which shows a section of the workings, where it suddenly ceases. Above, below and on either side a few feet away the air is dead. The exits to surface C and D on the north side of the mountain, E and F on the south side, are closed by many feet of hard,



AIR CURRENTS IN A MINE.

drifted snow. The current has now been going on for weeks. It does not have any perceptible effect on the dead air, but ceases at the point indicated. A candle will not flicker a few feet above that point; there is no return current. Now, the question is, where does the air go to? —F. F. R.

Answer.—From your question and the diagram given, it does not appear that there is any reason for the current unless there are cracks or fissures large enough to account for it; and if these exist they must communicate somewhere with the external air.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending April 4th, 1899.

622,198. CARBURETER. George W. Benedict, Cincinnati, O. The combination with an oil-supply tank, a generator and a feed-pipe leading from the oil-supply tank to the generator, of a pipe communicating at one end with the oil-supply tank and conducting carbureted air directly therefrom to a point in proximity to the generator for supply fuel for the initial heat for the generator.

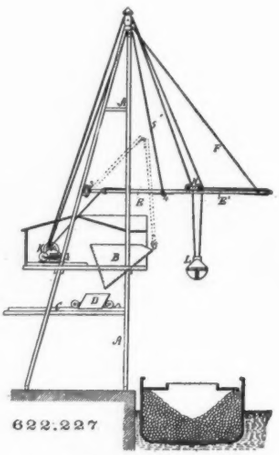
622,219. CONTINUOUS KILN FOR BAKING POTTERY OR BURNING CEMENT. Emile Gobbe, Jumet, Belgium. A continuous kiln having a double series of chambers separated by a dividing longitudinal wall, transverse walls separating the individual chambers and provided with vertical flues, their lower ends communicating with subways beneath the floors and openings in said floors and their upper ends with the upper portions of the chambers, a central longitudinal passage communicating with both series of chambers through gas-flues over the transverse walls.

622,227. HOISTING APPARATUS. Charles W. Hunt, New York, N. Y. The combination with a stationary support, of a boom having two lines of rail and an opening between them and connected together at the outer end, a guy rope or chain for suspending this outer end and a hinge for connecting the inner end to the stationary support, the boom being divided and hinges for connecting the respective parts of the boom together and means for moving the joint and the boom upwardly in folding said boom.

622,238. COMBINED KILN AND DRYING TUNNEL. Robert Klose and Alois Klose, Hastings, Neb. A kiln having a tunnel, in combination with a drying-tunnel contained within a wall of the kiln, a flue interposed between the kiln-tunnel and drying-tunnel, extending parallel with and substantially the length of the tunnels and communicating at one end with the latter.

622,255. GOLD-WASHING MACHINE. Frederick Ortlieb, Lehigh, Ind. Territory. The combination of stationary bed-frames with two shaking farmes, the motion of the latter being given them by pins carried on wheels of different sizes, so as to give the shakers alternating motion.

622,264. SUPPORTING-TRIPOD FOR ROCK-DRILLS. Jay B. Rhodes, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. A leg-holder comprising a circumferentially broken or split socket adapted to receive a lateral projection on the upper end of the tripod-leg; the said leg-holder being adjustably connected to the tripod-frame by a pivot-bolt which extends through the separated end portion of the socket, comprising said holder, whereby a loosening of the nut



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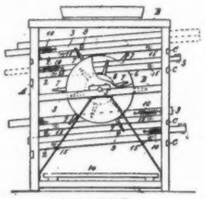

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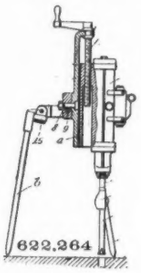
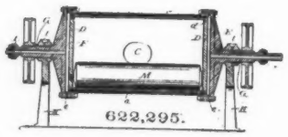


622,264

of said bolt permits the leg to be swung from side to side and also from front to rear, and a tightening of the same locks the leg in both adjustments.

622,280. HOISTING MACHINERY. Alton J. Shaw, Muskegon, Mich., assignor to the Shaw Electric Crane Company, same place. In combination with a trolley, a hoisting-bar movable vertically in relation to said trolley, a motor for elevating said bar, carried by the trolley, tongs carried by said bar, mechanism for opening and closing the tongs, and a motor carried by the bar to actuate the said mechanism in both opening and closing.

622,295. METHOD OF AMALGAMATING ORES OF GOLD AND SILVER. John E. Sutphen, Albany, N. Y. The method consists in applying a suitable quantity of mercury to ore-pulp confined in a cylinder, and subjecting such pulp and mercury to the action of heat, and at



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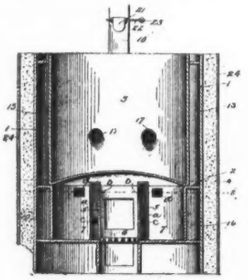


622,327.

the same time applying a steady pressure upon the pulp and mercury, keeping the mercury in a homogeneous body and in close contact with the ores.

622,301. ART OF ANNEALING OPEN-HEARTH OR BESSEMER STEEL. Edwin D. Wassell, Pittsburg, Pa., assignor to Ann Isabell Wassell, same place. The process consists in covering the metal while heated with a liquid oxide, allowing the oxide to partially cool and form an air-excluding crust, maintaining the heat in the metals and the oxide for a determinate time and finally removing the source of heat and allowing the metal and the oxide to slowly cool.

622,319. EVAPORATING APPARATUS. David Augsburger, Berne, Ind. In combination, a reservoir-tank, partitions for dividing the same into compartments, said partitions having openings therethrough, gates for closing said openings, a heating-casing a perforated top therefor, partitions located within the heating-casing, induction-pipes leading to the heating-casing compartments and exhaust pipes.

622,327. CALCINING FURNACE. Todd Calvert, Tampa, Kan. In combination the cupola 1, the kettle 3, a vertical flue 15 and an annular chamber 13 arranged between said cupola and kettle, horizontal flues extending through the kettle and communicating with the chamber 13 and flue 15, a combination-chamber 6 located beneath said kettle, parallel walls 5 5 extending on each side of the combustion chamber and formed with ducts a a for the admission of atmospheric air to said combustion-chamber and with inlet-orifices c c communicating with the atmosphere.

622,344. VALVE FOR COMPRESSORS. Frederick W. Gordon, Philadelphia, Pa. The combination of a compressor-cylinder, a valve-cylinder with an end opening directly to the compressor-cylinder and having discharge-ports in its wall near such end, the opposite end of said valve-cylinder being in communication with the discharge-chamber, a closed valve-piston fitted to reciprocate within said valve cylinder and to have its end co-operate with said discharge-ports, a tappet adapted to move said valve-piston to position to cover said ports, and a cushioning-piston connected with said valve-piston.

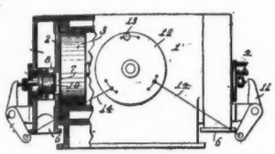
622,365. DEVICE FOR PENETRATING FROZEN EARTH OR GRAVEL. Thomas J. Hubbell, Santa Cruz, Cal., assignor of one-half to Frank Fisher, San Francisco, Cal. An apparatus comprising a perforating-tool, a shank and means connecting it therewith, a framework having upper and lower cross-timbers, and upper and lower guides carried by said cross-timbers and through which guides the shank loosely passes, one of said guides fixed and the other adjustable to bring it in the vertical line of the fixed guide when the frame of the apparatus is set upon an incline.

622,388. TREATMENT OF LIME. Harry H. Pierce, Toledo, Ohio, assignor of one-half to Allen C. Brantingham, same place. The process consists in, first, slaking quicklime to a putty; second, mixing with said putty natural carbonate of lime in a pulverized state; third, roasting the compound thus formed to drive off the uncombined moisture, and to combine and diffuse the carbonic-acid gas of the carbonate with the lime, and fourth, grinding to a powder the product thus obtained.

622,373. ARTIFICIAL FUEL. John W. Leadbeater, Leeds, England. The process consists in first reducing to a state of division a combustible compound formed by mixing petroleum, resin, stearin, lime and sawdust, and then adding said divided compound to combustible waste products, and finally compressing the mixture thus formed into bricks or blocks.

622,374. COMBUSTIBLE COMPOUND. John W. Leadbeater, Leeds, England. An insoluble combustible compound consisting of a mixture of petroleum, stearin, resin, lime and sawdust.

622,382. DUMPING CAR. Michael J. McKinnon, Portland, Oregon. The combination of a main frame, a body, a ball-and-socket bearing interposed between the center of the body and the frame, a transverse



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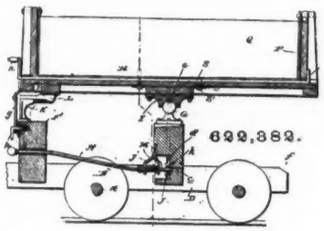

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rocker-bearing interposed between the body and frame adjacent to one end a circular or arc-shaped guide-bar connected at its ends to the body in a hinged manner, and movable in guides in the frame, and suitable means for detachably securing the body against longitudinal inclination, and also against lateral inclination.

622,387. CEMENT. Harry H. Pierce, Toledo, Ohio, assignor of one-half to Allen C. Brantingham, same place. The process consists, first, in slaking quicklime to a putty; second, adding therto pulverized sulphate of lime; third, roasting this mixture to drive off the moisture, and to diffuse the gases thereby released, and fourth, reducing to a powder the roasted product thus obtained.

622,408. MEANS FOR EXTRACTING PRECIOUS METALS FROM THEIR ORES. Frank B. Aspinall, Lee and Edouard C. Ekstromer, Snaresbrook, England. A tray divided into annular troughs and rotating in a closed vessel; a plow to stir up the ore and transfer it from one trough to another; with proper fed and discharge openings.

622,409. MINER'S DRILL. Henry Aylmer, Richmond, Canada. The combination with the body proper provided with a dovetailed groove extending across the end and transverse side notches extending into

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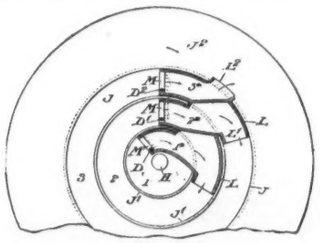

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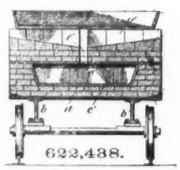

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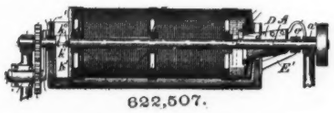


622,507.

the groove in the center of the sides, of the drill-point having a dovetailed portion adapted to fit the groove and a central hole adapted to align with the notches, and a pin extending through the notches and central hole in the point.

622,422. EXCAVATING APPARATUS. Samuel Flory and Andrew A. Bruch, Bangor, Pa. In combination with a way, a carrier thereon, with means for moving the same, a receptacle with means for raising and lowering the same in relation to the carrier and a combined scraping and dumping rope connected with the receptacle.

622,438. METALLURGICAL-FURNACE APPLIANCE. William Beam, Gill Hall, Pa., assignor to James P. Beam, same place, and Joseph T. Trees, McKeesport, Pa. A refractory crucible-supporting furnace structure having a chamber with a longitudinally-extending top opening, and transverse rows of risers with open-ended passages between them having bottom sloping toward the said top opening, the crucible resting upon the risers and bridging the same.

622,459. WELL-DRILLING MACHINE. Philander B. Freeman, Chicago, Ill. assignor to Fredrick C. Austin, same place. A well-drilling machine comprising an upwardly and downwardly movable member having a relatively slow down and quick up movement, for spudding, and having in alternation therewith a relatively quick down and slow up movement for drilling, with means for giving reciprocating motion.

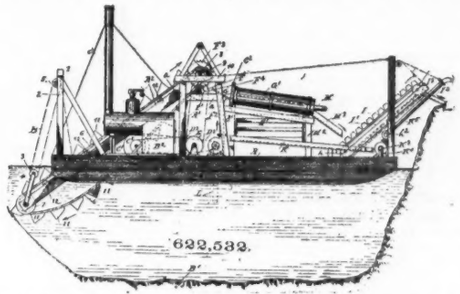
622,473. WELL-BORING DEVICE. William W. Horr, St. Thomas, Canada. Apparatus, comprising a cutter, a platfrom above the cutter on which a workman can stand, an operating-rod for the cutter, and operative connections between the rod and cutter located to one side of said platform whereby an unobstructed space is left on said platform.

622,489. CARBURETER. Leonidas L. Kelly, Chicago, Ill. A carbureter comprising an outer shell or casing, a series of oil circulating and commingling sections placed one above the other, each section consisting of numerous pipes secured at their ends to chambers, each chamber having an aperture communicating with the aperture of the adjacent chamber.

622,507. ORE WASHER AND SEPARATOR. James F. Mason, Waycross, Ga., assignor of two-thirds to David H. Arnold and Lewis C. Drake, Nicholasville, Ky. The combination with a horizontal shaft mounted in suitable bearings, a cylindrical screen rigidly mounted upon said shaft, a trough journaled upon said shaft beneath said screen, and partially surrounding the latter, gearing between said shaft and said trough for imparting to the latter a rocking motion in a path parallel to said screen during the rotation of the shaft, a spout entering one end of the said screen for delivering the ore and water thereto.

622,527. DREDGING APPARATUS. William H. O'Hara, New York, N. Y. The combination of a plurality of bow-jibs carrying inclined tracks, trolley-carriages adapted to travel on said tracks, a series of independent digging-clams suspended from said carriages, the single inclined chute supported by the dredging-boat, and means for effecting the delivery of said clams in dumping position at a uniform distance from said chute.

622,532. GOLD-DREDGING APPARATUS. Robert H. Postlethwaite, San Francisco, Cal., assignor to the Risdon Iron and Locomotive Works, same place. The combination with the dredge-boat, of a swinging ladder mounted at one end the endless carriers supported by said ladder, cutting or excavating buckets secured to or carried by said endless carrier, devices for raising and lowering the elevator, mechanism for driving the endless carriers, the inclined rotary grizzly, a trough or runway for conveying the excavated ma-



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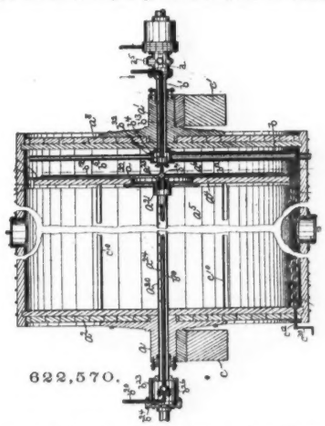
terial from the excavating-buckets to the grizzly, a force-pump for supplying water into the grizzly to wash and separate the material fed therein, a series of separating plates or platforms arranged at an incline below the rotary grizzly, a sump or well formed in the dredge-boat, the sluiceway leading from the platforms or tables to the sump or well, the discharge-pipe for conveying the said material from the sump, a bucket elevator, mounted upon a movable ladder, for removing the heavier material, a runaway for conveying the heavier material from the rotary grizzly to the bucket elevator, and of devices for raising and lowering the elevator and the discharge-pipe.

622,570. APPARATUS FOR LEACHING. George C. Vaughn, Salem, Mass., assignor to the Vaughn Machine Company, Portland, Me. The combination of a rotatable normally-closed drum to contain the material to be leached, a partition-wall or false head within said

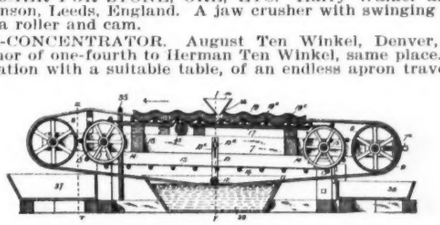


622,570.

drum to form a leaching-chamber and a liquor-chamber or well, means to effect communication between said chambers near the circumferential wall of the drum for the passage of the extract or percolated liquor from the leaching-chamber into the liquor-chamber, a liquid-inlet for the leaching-chamber, and a liquid-outlet for the liquor-chamber.

622,573. CRUSHER FOR STONE, ORE, ETC. Harry Walker and William Johnson, Leeds, England. A jaw crusher with swinging jaw moved by a roller and cam.

622,641. ORE-CONCENTRATOR. August Ten Winkel, Denver, Colo., assignor of one-fourth to Herman Ten Winkel, same place. The combination with a suitable table, of an endless apron traveling above



622,641.

the table, agitators traveling between the table and the apron and engaging the latter underneath, the apron being sufficiently slack to form valleys or depressions between the agitators, and means engaging the endless apron from above for maintaining the valleys or depressions in the apron between the agitators.

GREAT BRITAIN

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

Week Ending March 11th 1899.

5,376 of 1898. COAL WASHING. J. H. Darby, Wrexham. Centrifugal method of separating surplus water from fine coal in coal washing.

6,668 of 1898. DRILL. F. H. Davis, Melbourne. Improvements in the Davis-Calyx deep-boring apparatus.

7,269 of 1898. ALKALINE SULPHATE TREATMENT. W. Baranoff and E. Hildt, Paris, and C. F. Claus, London. Production of sulphur and alkaline carbonates from alkaline sulphates.

7,376 of 1898. SLIMES TREATMENT. J. A. Gilmour and H. S. Young, Leon, Nicaragua. Precipitating the dissolved gold in slimes by means of an amalgam of zinc without separating the solvent from the slimes.

7,586 of 1898. MAGNETIC SEPARATOR. Metallurgische Gesellschaft, Frankfort-on-Main. Improvement in magnetic separator used on weakly magnetic bodies.

1,036 of 1899. DEEP-BORING APPARATUS. J. Vogt, Massevaux, Alsace, Germany. Improvements in deep-boring apparatus.

PERSONAL.

Prof. Arthur Lakes of Denver, has examined the Topeka Mine in Gilpin County, Colo.

Mr. Patrick Clarke, who has been on a business trip East, has returned to Spokane, Wash.

Mr. W. H. Wiley, of Idaho Springs, Colo., is examining mining property at Cripple Creek.

Mr. John Webb, of New York, is in Colorado examining mining property near Idaho Springs.

Mr. Dan Murphy, of the firm of Monahan & Murphy, of the Needles, Cal., is on a visit to San Francisco.

Mr. L. A. Scowden, of London, is about to return to England to report on some California copper properties.

Mr. F. Robb, lately with the Anchor concentrator, has taken charge of the Daly-West Mill at Park City, Utah.

Mr. J. K. Mackenzie, of Chicago, has gone to Tres Piedros, New Mexico, and to Golconda, Nev., to examine mines.

Mr. Louis Janin is in Rossland, B. C. It is understood that Mr. Janin has been summoned as a witness by the Iron Mask Company.

Mr. Charles Parker, a mining engineer of Rossland, B. C., has been on an extended visit to the eastern provinces of Canada.

Mr. J. C. Claussen, of Blanco, Cal., has taken the position of civil engineer with the De Lamar Mining Company, at De Lamar, Idaho.

Mr. Wm. H. Rattle, of Cleveland, O., has been in Colorado recently examining mining property at Idaho Springs for Cleveland parties.

Mr. T. R. Jones of the Germania Smelter, at Salt Lake, is the Utah representative of the American Smelting and Refining Company.

Mr. C. C. Parsons, president of the Newhouse Tunnel, at Idaho Springs, Colo., has returned from England, after completing negotiations for resuming work.

Mr. Edmund A. Bartl, of Scranton Pa., who recently returned from a trip in the Klondike country, has been appointed consulting mining engineer for the Scranton Coal Company.

Mr. L. W. Tatum, after having had charge for 3 years of a large mining property at San Luis de la Paz, Mexico, has returned to the United States and will for a time be in Chicago.

Mr. William Alperson, a mining engineer of Spokane, Wash., is stopping at the Imperial Hotel, New York City. Mr. Alperson has recently returned from a 6 months' trip abroad.

Mr. Frank J. French, of New York, has been appointed manager of the Blue Jacket Mine, in the Seven Devils District, in Idaho, and will take charge shortly. His address is at Cuprum, Idaho.

Mr. Arthur L. Pearse, of London, consulting engineer of the Tarantula Mine in Tuolumne County, Cal., and the Gold Run Gravel Mines, is about to return to London, after inspecting the properties.

Prof. A. Van der Naillen, of San Francisco, left that city on April 7th, for an extended trip through Europe to investigate the recent developments in wireless telegraphy and the Wehnelt interrupter.

Mr. W. J. Walsh, general superintendent of the American Mining Company, at El Oro, Mex., has been compelled to take a long vacation on account of bad health. He is at present in Jalapa, Mex.

Mr. D. H. Bacon, president of the Minnesota Iron Company, has leased a dwelling in Duluth for a term of years, and will live there, as the interests of the company require his immediate presence.

Mr. R. C. Turner, until recently superintendent of the Excelsior Mine near Sugar Pine, Tuolumne County, Cal., has accepted a position as superintendent of the Plumas Development Company's property at La Porte, Cal.

Mr. Clarence King, who is in Rossland, B. C., as an expert witness on behalf of the Center Star Company, has expressed himself as much impressed with the progress made by the leading mining companies working on Red Mountain.

Mr. John W. Cloud, formerly general sales agent of the Westinghouse Air Brake Company, is to become the London representative of the company as vice-president and general manager of the Westinghouse Air Brake Company, Limited.

Mr. C. E. Finney, general manager of the commercial department of the Consolidated Kansas City Smelting and Refining Company, at St. Louis, has accepted a position as general manager of M. Guggenheim's Sons, New York. Mr. Finney has been with the Kansas City Company for 12 years.

Mr. George A. Dean, who has been furnace superintendent at Mingo Junction, O., for 28 years, for, in turn, the Junction Iron and Steel Company and the Aetna-Standard Iron and Steel Company, has resigned. Mr. J. S. Oursler, of Pittsburg, has been appointed his successor by the National Steel Company.

Mr. Paul Johnson, for some time superintendent of the Guggenheims' Aguascalientes, Mexico, Smelter, "La Gran Funcion Central Mexicano," has resigned his position to accept a similar one in British Columbia. Mr. Raht, of the Guggenheims' New York office, is temporarily filling the position of superintendent.

Dr. Rossiter W. Raymond is in Rossland, B. C., the guest of the War Eagle Gold Mining Company. Mr. Raymond will give expert evidence before the Supreme Court of Rossland on the question of extra-lateral rights involved in the litigation between the Center Star and Iron Mask mines. The court opened in Rossland on April 17th, Justice Walkem presiding.

Mr. Harry A. Lee has been reappointed by Governor Thomas Commissioner of Mines for Colorado for the term of 4 years. The "Engineering and Mining Journal," which several times has had occasion to call attention to the excellent work that Mr. Lee has done, is pleased to hear of his re-election and trusts that he may have the opportunity of doing even better work in the future.

Messrs. R. Midzutani and Hyo Hamada, of the Mitsu Bishi dock yards and engine works at Nagassaki, Japan, were in Pittsburg, Pa., recently, conferring with the Carnegie Steel Company, Limited, regarding shipbuilding material. They represent the largest shipbuilding plant in Japan, and have been buying all their material in the past from England and other European countries.

Professor William Niven, of New York, who is exploring the State of Guerrero, Mex., in the interests of science and at the same time making an examination of its mineral resources, has reached a point 100 kilometers from Chichihualco and from there he left last week for the center of the state, of which very little is known. He will be out of communication with the rest of the world for the balance of this year.

Mr. A. Smart, of London, consulting engineer to the Rand Mines, Limited, and the De Beers Consolidated Mines, Limited, Johannesburg, South Africa, has been in Pittsburg, Pa., accompanied by Mr. J. W. Downer, manager of the Department of Foreign Relations of the National Tube Works Company. The visit was in connection with the large order for pipe awarded to the National Tube Works Company by the Rand Mines.

OBITUARY.

Charles Van Brunt, a director of the Butte & Boston and Boston & Montana companies, died at his home in Milton, Mass., April 16th, from heart disease.

B. Salazar, a mining engineer, died at his residence in Los Angeles, Cal., April 5th, after an illness of several months. Mr. Salazar, before he went to Los Angeles, was a Senator for the State of Chihuahua, Mex. He was about 46 years of age.

John Wallace, one of the pioneers in the manufacture of dynamite in this country, died at Marquette, Mich., April 10th. He was at one time with the Atlantic Dynamite Company, of Drakesville, N. J., but for the past 20 years had been connected with the Lake Superior Powder Company, of Marquette. He was a director of this company and until he retired from active business superintendent of its high explosive department.

Morgan Thomas, State mine inspector for the Third Mining District of Iowa, died in Des Moines on April 11th. He was by birth a Welshman, but when 20 years old went to Australia, where he spent 10 years. When about 30 years old he came to this country and at first settled in Iowa. Afterward he had charge of mines in the copper regions of Lake Superior, in Montana, and in Leadville, Colo. He was 54 years old.

SOCIETIES AND TECHNICAL SCHOOLS.

Engineers' Society of Western Pennsylvania.—At the meeting on April 18th 35 members and visitors were present.

The paper of the evening, entitled, "Quick-Revolution Engines," was read by Mr. Arthur Herschmann. The author took up the question of the details of construction of high-speed engines, as shown by the best practice in America, England, and Germany, and discussed the different types of cut-offs, piston packings, lubrication, etc. At the conclusion of the reading of the paper there was a full discussion upon the points raised.

A financial committee has been appointed by the society, with a view of securing funds with which to purchase a permanent home.

Mining Society of Nova Scotia.—At the annual meeting on April 12th, at Halifax, over 30 members were present. Mr. Charles Fergie, of the Drummond Colliery, Westville, president of the society, reviewed the progress of mining in the province, and dwelt upon the satisfactory condition of the society. During the year there had been a large increase in membership. Books, containing proceedings and papers read before the society had been widely distributed.

Papers were read, prepared by Messrs. George W. Stuart, F. H. Mason, A. A. Hayward, J. R. Cowans, A. C. Ross, C. A. Meisner and others. Mr. W. L. Lopey presented a statement calling attention to numerous inaccuracies in the official returns of the Mines Office during the last two years. The following officers were elected: President, Charles Fergie; Vice-Presidents, J. G. Rutherford, W. L. Libbey, George W. Stuart; Secretary-Treasurer, H. M. Wylde; Council, Clarence H. Dimock, James Baird C. F. Andrews, F. H. Mason, H. D. McKenzie, M. R. Morrow, J. H. Austen, Alexander McNeil, C. E. Willis.

INDUSTRIAL NOTES

The Link Belt Company, of Chicago, is furnishing a 12-ton electric locomotive for the Essen Coal Company, Pittsburg, Pa.

Heyl & Patterson, of Pittsburg, Pa., have been awarded a contract to erect a car hoist able to haul 4 cars a minute for the East Goshen, O., Coal Company.

The Westinghouse Machine Company, of Pittsburg, Pa., is reported to have sold for export within the last 60 days 43 steam and gas engines aggregating 3,500 H. P.

The American Car and Foundry Company has closed contracts for 250 coal cars of 65,000 lbs. capacity, and 2,500 coal cars of 80,000 lbs. capacity, for the Buffalo, Rochester & Pittsburg Railroad Company.

The Riter & Conley Company of Pittsburg, Pa., has secured a contract to construct 1 mile of steel pipe to be used in placer mining in Colorado. The pipe will be 24 and 36 in. in diameter, and will be riveted in 30 ft. lengths for shipment.

The Hendrie & Bolthoff Manufacturing and Supply Company of Denver, Colo., recently shipped 6 Norwalk air compressors to Cripple Creek district, as follows: 2 to the Ajax, 1 each to the Mary McKinley, Isabella, Anchoria-Leland and Tornado mines.

The Niles Tool Works recently received from France an initial order for large boring and turning machine tools for engine works near Paris. Three large gun lathes have recently been shipped to St. Petersburg for the Russian Government. The value of the two orders is about $100,000.

The Gates Iron Works of Chicago recently shipped machinery for a 75 ton concentrating mill for the Boston & Silverton Mining Company to Silverton, Colo. The company has sent its representative, Benjamin Rich, to Dutch Guinea to superintend the erection of a large ore reduction plant.

It is said that the Watts Company, of Middlesboro, Ky., has made a contract with the Virginia Coal and Iron Company by which both furnaces and the big steel plant at Middlesboro will be operated by the Virginia Company. The two furnaces are now turning out 250 tons of iron per day.

The Berlin Iron Bridge Company, of East Berlin, Conn., has taken the contract for the new roof on the East Armory of the Colt's Fire Arms Manufacturing Company, at Hartford. This roof is 60 ft. wide and 500 ft. long, and is to be entirely recovered with the Berlin company's anti-condensation lining underneath the corrugated iron outside covering.

The firm of Walsh & Weidener, of Chattanooga, Tenn., is building a steel tower and tank of 50,000 gal. capacity for a firm in Wynne, Ark., a 200 ft. smokestack for an Evansville, Ind., factory, 3 150 H.P. boilers for the Ducktown copper mines, a 200 lb. pressure boiler for Knoxville, 3 100 H.P. boilers for a Memphis cotton oil mill, and 5 100 H.P. boilers for parties in North Carolina.

The National Clay Manufacturing Company has commenced operations at its large new plant near the City of Mexico Mex. Fire brick will be the principal product. The company has already more orders than it can fill with brick of its own manufacture. A large order for new machinery and necessary supplies will be placed in the United States before the summer. A. W. Cockerton, San Juan de Letran No. 4, Mexico City, is secretary and treasurer.

The M. C. Bullock Manufacturing Company, of Chicago, has shipped an engine and 3 ventilating fans to Japan, a first motion 24 by 48 hoist and a ventilator fan to British Columbia, an air compressor and a Willans engine to the Detroit city lighting plant, and a Willans engine

to Colorado. It has also shipped 1 diamond drill to England, 1 to Kentucky, 1 to the Black Hills, 1 to Mexico, and is boring 2 deep prospecting holes in Mexico, 2 in Illinois, and 18 in Georgia.

The Columbus Mill and Mine Supply Company, of Columbus, O., has contracted to furnish the Central Ohio Natural Gas and Fuel Company with 40 miles of 10-in. wrought iron pipe for the gas company's new pipe line; 40 miles of smaller pipe for city mains, and the casing and tubing for 10 new gas wells. The Oil Well Supply Company, of Pittsburg, Pa., will manufacture the pipe for the city mains, and the Pennsylvania Tube Works, of Pittsburg, Pa., will furnish the 10-in. pipe.

The organization of the National Salt Company has been completed by the election of officers as follows: President, A. S. White; vice-president, George W. Young; secretary and treasurer, John Alvin Young; assistant secretary, C. L. Paar; assistant treasurer, R. W. White. It is said that the various plants acquired will be operated for the present in the same way as previous to the consolidation. The offices of the company are in the Standard Oil Building, New York City.

The International Smokeless Powder and Dynamite Company has been incorporated with $10,000,000 capital in 200,000 shares of $50 each. The Marsden Company of Philadelphia, manufacturer of cellulose, is back of the new company. The officers are: Lewis Nixon, president; W. W. Gibbs, vice-president; Walter Woollcott, secretary and treasurer. The directors are: Lewis Nixon, W. W. Gibbs, Edward C. Lee, George Philler, George S. Graham, John G. Meigs and Ernest E. Davies.

Henry R. Worthington, New York, of the International Steam Pump Company, has the contract for the pumping machinery to furnish the water supply for the Paris Exposition in 1900. The plant will consist of 4 Worthington horizontal high-duty triple-expansion condensing engines, 12 and 20 and 34 by 26 by 24, having a total capacity of 44,000,000 gal. in 24 hours, against a total head of 37 lbs., with 150 lbs. steam. The engines will be of latest Worthington type, each supplied with a surface condenser in the suction and attached air pump.

Officers and directors of the American Steel Hoop Company have been elected as follows: President, C. S. Guthrie; first vice-president, C. A. Painter; treasurer, F. S. Wheeler; secretary, F. L. Clark. Executive Committee: C. S. Guthrie, George E. Painter, Veryl Preston, W. B. Leeds, D. G. Reid, W. H. Moore, F. S. Wheeler. Directors: C. S. Guthrie, C. A. Painter, George E. Painter, Veryl Preston, W. E. Taylor, R. M. Gilbert, W. T. Graham, F. S. Wheeler, D. G. Reid, W. E. Reis, Henry Wick, J. H. Moore, W. H. Moore W. B. Leeds and J. J. Treacy.

Harrison Brothers & Company, Incorporated, of Philadelphia, Pa., a stock company with $2,500,000 capital, $1,500,000 preferred and $1,000,000 common stock, has been formed to take over the business and property of Messrs. Harrison & Brothers Company, manufacturers of white lead, paints, colors and chemicals, in Philadelphia. The officers are: President, Thomas S. Harrison; secretary and treasurer, C. Leland Harrison; directors—John Harrison, George L. Harrison, Thomas S. Harrison, John Hampton Barnes, James Langmuir, C. Leland Harrison, John A. Shibley.

The Bethlehem Steel Company, of Philadelphia, capitalized at $5,000, has been chartered under Pennsylvania laws, for the manufacture of iron or steel, or both, or of any other metal, or of any article of commerce from metal or wood, or both. The incorporators are: Joseph Wharton, Milestown; Elisha P. Wilbur, South Bethlehem; Robert H. Sayre, South Bethlehem; Robert P. Linderman, South Bethlehem; R. Borie, Philadelphia; E. T. Stotesbury, Germantown, and John L. Welsh, Philadelphia. The amount mentioned in the charter is nominal, the real value of the new corporation being about $15,000,000.

At the annual meeting of the stockholders of the Joseph Dixon Crucible Company, in the company's main office, Jersey City, N. J., Monday, April 17th, out of a possible vote of 7,345 shares, there were 7,069 shares voted for the re-election of the old board, consisting of Edward F. C. Young, John A. Walker, Daniel T. Hoag, Richard Butler, William Murray, Alexander T. McGill and Joseph D. Bedle. President E. F. C. Young, Vice-President and Treasurer John A. Walker and Secretary Geo. E. Long were re-elected by the directors. Judge Joseph D. Bedle was also re-elected as counsel.

The Weber Gas and Gasoline Engine Company, of Kansas City, Mo., reports recent shipments as follows: One carload, 8 engines, to Southern California for irrigation; one 10-H. P. hoist for Sonora, Mex.; one 25-H. P. hoist for Silverton, Colo.; one 10-H. P. engine for Havana, Cuba; one crude oil engine for Porterville, Cal. The company has also just finished the installation of a plant entirely furnished by it for pumping the sewerage from the City of El Paso, Tex., during flood time of the Rio Grande River. This consists of 2 direct connected, 10-H. P. Weber gasoline engines and two 8-in. Morris centrifugal pumps.

The Geo. F. Blake Manufacturing Company reports that it has shipped air pumping machinery to the Vulcan Works, Stettin, Germany, to equip the Japanese and Russian cruisers being built there. The firm has orders for over 50 large marine pumps for both the North German Lloyd and the Hamburg-American Steamship Companies. French orders include 40 pumps on the Blake simplex system for 2 of the new liners of the Compagnie Generale Transatlantique, now building at Havre. The company is also constructing several pumps for the Austrian navy, and is negotiating with the Russian Government for the equipment of some cruisers.

The following coal mines in the Pittsburg District are being supplied with mining machinery by the Jeffrey Manufacturing Company, of Columbus, O.; Panhandle Coal Company, 3 mining machines and an electric generator; Tide Coal Company, 7 machines, a new haulage plant, a coal crusher and a new Phillips tipple; California Coal Company, six machines and a 12-ton motor locomotive; Vulcan Coal Company, one 15-ton tipple motor, electric locomotive and one 4-ton gathering locomotive; Morgan, Moore & Baine, at Banning mine, one 15-ton locomotive; Osborne, Saeger & Company, at Darr Mine, one locomotive; at Euclid Mine, 4 machines and electric haulage plant, with all appurtenances; Westmoreland Coal Company, 16 machines at Export Mine; John H. Jones, a 6-ton locomotive.

The Haydenville Company has purchased the entire business of the old-established works of the Haydenville Manufacturing Company, at Haydenville, Mass., manufacturing brass and iron valves, cocks, gauges, lubricators and engine fittings. The business has been thoroughly reorganized, and the following officers elected: C. J. Hills, president; C. K. Sanborn, vice-president; A. S. Hills, treasurer. The company states that the works have been running continuously for over 50 years, and the product has always been of the highest standard as to quality of metal and workmanship, especial attention being given to uniformity of threads and practical construction of working parts. It has removed its New York office to the American Building, on Nassau street.

The board of officers of the Pratt & Whitney Company, of Hartford, Conn., is Amos Whitney, president; Rowland Swift, vice-president; Roswell F. Blodgett, secretary, and J. C. Stirling, treasurer. The office of the second vice-president, lately held by George W. M. Reed, has not been filled. The same men who constituted the executive board last year have been re-elected. The treasurer's report shows that the sales for the past year amounted to $1,315,603, a net profit for the year of $82,914. The following are the directors for the coming year: Francis A. Pratt, Amos Whitney, Roswell F. Blodgett, Rowland Swift, William Waldo Hyde, J. R. Refield, George W. M. Reed, Frank C. Sumner, Daniel R. Howe, of Hartford; C. C. Cuyler, A. C. Vaughn and Robert S. Walker, of New York, and T. J. Nicholl, of Rochester. Mr. Nicholl, who is the new managing director, succeeds Gen. H. J. Morse, of New York.

A blast furnace with a capacity of 125 tons of charcoal iron a day will, it is said, be erected at Munising, Mich. The company, which has a capital of $250,000, will erect a by-product plant to save the residues from its charcoal kilns, and make acetete of lime and wood alcohol. The iron ores will come from the Marquette Range. The directorate consists of Harvey H. Brown, Cleveland, and N. B. Bubb, Williamsport, Pa.; R. J. Gaffney, Bradford, Pa., and Thomas Kerry, Hancock, N. Y., three men interested in the Manhattan Spirits Company; W. H. Hinkle, Ashland, Wis.; E. H. Scott, LaPorte, Ind.; Robert Morrison, manager of the Munising Railway, and H. J. Pierce, Buffalo, N. Y., of the American Charcoal Company. The officers: President, W. H. Hinkle; vice-president, R. J. Gaffney; treasurer, N. B. Bubb; manager of the chemical department, Thomas Kerry. Rogers, Brown & Company are said to be among those interested.

It is said the National Steel Company has almost completed a deal to acquire the Oliver one-sixth interest in the Carnegie-Oliver ore arrangement, formerly used by the Edith Furnace in Allegheny, and the Rosena Furnace at New Castle, of the Oliver & Snyder Steel Company, and by New Castle interests already in the National Steel Company. The Edith Furnace was sold some time ago to the American Steel and Wire Company, no part of the ore going with the sale. The Rosena Furnace is to go to the National Steel Company, with the Oliver share in the ore arrangement. The control of this ore interest, with the 1,250 acres of Connellsville coking coal land recently purchased from H. C. Frick, will give a very good command of raw materials. Enlargements of the Buhl Steel Company's open-hearth plant at Sharon, Pa., are contemplated, as well as an additional furnace at Bellaire, O., and another at Mingo Junction.

TRADE CATALOQUES.

Catalogue No. 12, issued by the Risdon Iron Works, of San Francisco, Cal., is entitled, "Milling Machinery." It is a finely illustrated affair of 138 pages and contains detailed descriptions, with plans and elevations, of plants for treating gold and silver ores, together with a lot of information regarding the savings by various methods, the horse power required, comparative costs of tramways and wagon roads, &c. The processes described at length are the Pelatan-Clerici, chlorination, wet crushing or silver ores with pan amalgamation, including the Boss continuous process; dry crushing of silver ores; lixiviation; combination process; patio process; concentration and lead silver and copper smelting. The machines and mechanical devices described include stamp mills, with the Barbour self-tightening cam; battery screens; Risdon triple discharge 2-stamp mills; amalgam barrels; retorts; Risdon and Johnson belt concentrators; ore dryers; Howell-White, Bruckner, Stetefeldt and O'Hara furnaces; Risdon, Dodge and Blake crushers; Bryan roller mill; elevators and conveyors, jigs, crushing rolls, water jacket furnaces and Risdon water wheels. The catalogue is very complete and will interest any one thinking of buying mill machinery.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind and forward them catalogues and discounts of manufacturers in each line.

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GENERAL MINING NEWS.

Oil Exports.—In March the exports of mineral oils from the United States, as reported by the Bureau of Statistics, were as follows: Crude, 14,432, 690 gals., against 10,893,978 gals. in March, 1898; naphthas, 906,233 gals against 721,251 gals.; illuminating, 61,264,672 gals., against 67,168,073 gals.; lubricating and paraffin, 6,120,708 gals., against 4,993,703 gals.; residuum, 2,549,400 gals., against 2,167,536 gals.; total, 85,273,703 gals., against 85,944,541 gals. in March, 1898. The total exports for the three months ending March 31st, 1899, is 199,318,759 gals., valued at $12,511,994, against 233,448,590 gals., valued at $11,232,470 in the first quarter of 1898.

ALASKA.

Douglass Island.

Alaska-Mexican.—The last monthly report of the mine shows 13,723 tons ore worked, valued at $24,633, and 244 tons sulphurets of a value of $9,045. Average of ore, $2.59. Expenses, $20,452. Bullion shipment, $35,531.

Alaska Treadwell.—The return for March of this mine, near Juneau, is as follows: Days run, 27½; tons crushed, 19,599; estimated realizable value of bullion, $27,482; sulphurets shipped, 315 tons; estimated realizable value, $9,432; estimated expenses, $25,000; profit, $11,911.

Alaska-United.—The last report states 13,800 tons ore worked, valued at $22,953, and 255 tons sulphurets, valued at $6,726. Average of ore, $2.30. Expenses, $23,150. Bullion shipment, $25,000.

ARIZONA.

Graham County.

Arizona Copper Smelting Company.—Edward Klinkenberg, of Brooklyn, N. Y., has secured an attachment against this company, organized several years ago with $100,000 capital, for $3,144 for money advanced. Klinkenberg was secretary and treasurer of the company, which had offices in New York City and a Smelter at Safford.

Mohave County.

(From Our Special Correspondent.)

Sheeptrail.—Since these mines, 6 miles west of the Colorado River, were purchased by the Boston syndicate, some $25,000 have been spent in improvements. The ore is said to average $18 in gold per ton at the mill on the east bank of the Colorado River.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Treadwell.—The control of this quartz mine, 7 miles east of Sutter Creek, has passed into the hands of H. D. Nixon, who will develop the property. The mine has been a good producer.

Calaveras County.

(From Our Special Correspondent.)

Sheepranch.—It is reported that work will soon begin at this mine at Sheepranch, 12 miles northeast of San Andreas, and that arrangements are being made to erect a new hoist and mill. The old workings were 1,200 ft. deep.

Kern County.

(From Our Special Correspondent.)

Eureka Mill.—The Kinyon Brothers have purchased this mill at Randsburg.

Mono County.

(From Our Special Correspondent.)

Jackson & Lakeview.—This group, comprising the Lakeview, May Lundy and North May Lundy claims, is to have a 10-stamp mill, cyanide plant and an electric light and power plant. A deep tunnel will probably be driven to prospect the ledge. R. T. Pierce is Superintendent.

Nevada County.

(From Our Special Correspondent.)

Kate Hayes Mining Company.—Judge Davis of Yuba County has granted an injunction against this company to restrain it from hydraulic mining. The injunction prevents the company from discharging any debris into Sweetland Creek, or the Yuba River, or any of its tributaries.

Pennsylvania Consolidated Gold Mining Company.—This company has declared a monthly dividend of $3,000. The new mill and hoisting works will soon be completed and an electric power plant installed. The property is 1½ miles east of Grass Valley.

Plumas County.

(From Our Special Correspondent.)

Granite Basin.—This property, 6 miles northeast of Merrimac, 18 miles west of Quincy, is reported to have been bonded by James See to Eastern parties. The mine has produced about $80,000.

Scott.—This drift mine is now well opened up and is producing satisfactorily. It is on Big Flat Channel, about 3 miles southeast of Butte Valley, on the north fork of the Feather River.

Shasta County.

(From Our Special Correspondent.)

Midas Gold Mining Company.—Development work has been progressing all winter, and 10 stamps have been added to the mill. Considerable custom work is done for parties in the vicinity. The cyanide plant has been rebuilt and a new method of roasting the mill tailings will be adopted. The working force is to be increased. J. H. Roberts is Superintendent.

Mount Shasta Gold Mining Company.—This company is building a new road from the summit at Meier's Camp to Shasta, which saves 1 mile and gives a down grade all the way. Development work is pushed with a large force of men.

Sierra County.

(From our Special orrespondent.)

Alaska.—The power to operate this mine, about ¼ mile northeast of Pike City, will in future be obtained from the Yuba Power Company, whose line will run within 10 miles of the mine.

Claycroft and Eureka.—Both of these hydraulic mines, about 8 miles north of Downieville, are working. Water is also nearly through the Excelsior Ditch.

North Fork.—At this drift mine, ¼ mile northwest of Forest City, which comprises 1,200 acres, a tunnel 4,500 ft. long has intersected the channel. A large force of men is at work.

Siskiyou County.

(From Our Special Correspondent.)

Golden Star.—The ledge tapped in the tunnel at the North Fork of the Humbug River is 5 ft. wide at a point 500 ft. below the prospect shaft on the surface, and averages about $15. Ore in sight is estimated to be about 1,000 tons. The management intends to run drifts, and will then erect a large mill, with concentrators and other machinery.

Greenhorn Blue Gravel.—This mine, about 2 miles south of Yreka, continues to yield handsomely, the daily cleanup running from $300 to $600. By May all the claims will probably be paid and the Receiver discharged.

Jillson & Roberts.—This quartz mine near Hornbrook is still turning out enough ore to keep the 12-stamp mill busy day and night. The vein is said to be about 12 ft. wide, with rich seams showing free gold.

Oregon Mining Company.—This company, which now owns the Ah Ock, Grider, Tongenson and Frazer hydraulic claims on the Klamath River, in the vicinity of Happy Camp is putting in new machinery and will soon begin work on a large scale.

Tuolumne County.

(From Our Special Correspondent.)

Alameda.—At this mine, ½ mile north of the Rawhide, an east crosscut is being run at the 900 ft., and a 13 ft. ledge is said to have been encountered.

Mack.—The shaft at this mine on the north side of Big Oak Flat, is being straightened out and a contract has been let to sink 100 ft. deeper and run a drift 150 ft. Edward Herschler is Superintendent.

Philadelphia & Rhode Island.—These claims on the east lode about 2 miles south of Carters, on the east side of the North Fork of the Tuolumne River, are about to be reopened by W. H. McClintock, who has put men to work cleaning out the old workings. The property has been a large gold producer.

COLORADO.

Clear Creek County.

(From Our Special Correspondent.)

Ada.—Philadelphia capital has taken this property at Idaho Springs under lease and bond. Contracts are being let for sinking the shaft deeper. Some prospecting in the lower workings has shown a streak of copper-gold ore.

Aliunde Consolidated Mining Company.—Considerable development is being carried on in this property at Georgetown. In the 850 ft. a streak of sliver ore was opened 18 in. wide. A shipment of 30 tons averaged $300 per ton. The company has also begun work in the 1,000, the 600 and the 750 levels to reach the same ore shoot.

Delta-Hudson.—Denver and Cleveland parties have unwatered the shaft for 175 ft. In starting a level west at this depth they opened a good body of sulphide ore. About 12 in. is smelting and the balance milling ore. The lode was worked by M. M. Pomeroy some 20 years ago. The lode is one of the strongest in the Idaho Springs District. However, the criticism at this time is in the number of bosses. On a personal visit to the shaft last week I found 4 men in authority over 6 men working in the shaft. Doubtless all are drawing salaries or expenses and the load will be too heavy for any mining company just beginning operations in the Gilpin-Clear Creek belt. The Cleveland parties interested ought to push development underground instead of allowing too much expense above ground. In addition to the sulphide ore there is a streak of lead ore carrying native silver of smelting value.

Little Richard.—Morgan & Company, of Milwaukee, who are working this property at Idaho Springs, have put in a Leyner compressor and air drills and an 80-H. P. boiler. Sinking is under way and a good value of smelting ore has been opened in the lower level and in the bottom of the shaft. The free milling ore is treated by the Kinkead "coffee mill" process. The smelting ore carries some copper.

Nebraska Gold Mining Company.—The Lord Byron Mine is now being worked by leasers. In the level at 400 ft. a body of lead and copper ore with gold values is showing as wide as the drift. The ore body is much larger than anything heretofore opened and is thought to be the same as the big Stanley Lode.

Gilpin County.

(From Our Special Correspondent.)

Mine Outputs.—During March the following is the production of some of the leading mines: Cook Mining Company, 2,000 tons of mill ore, which produced 360 tons of concentrates, and 126 tons of smelting ore; Concrete, 1,050 tons of mill and smelting ores; Kansas-Burroughs Gold Mining Company, 2,075 tons; Carr, 9 tons of first class ore, 10½ tons second class ore and 21 cords mill ore, with a total value of $4,829. The Carr worked but 12 men, some of them on development work, and the property is to-day one of the best producers in the county according to size.

California.—A new flat steel rope 2,500 ft. long, made by the Washburn & Moen Manufacturing Company of San Francisco, Cal., has been received for the deep shaft, and an order for another has been given by Manager A. L. Collins, of the Gold Coin Mines Company.

Gregory-Bobtail.—This property, which has been worked by the Gregory Consolidated Mines Company a little over 2 years under lease, and was given up by the lessees on April 18th, has been purchased by I. T. Bush and J. S. Bache of New York, Henry R. Wolcott of Denver, B. B. Laurence of Georgetown, Colo., and A. L. Collins of Central City. The price is not given. The property has produced upwards of $10,000,000 in gold. The sale means that the pumps will not be drawn and the other big mines in the vicinity will consequently be able to prosecute work.

Rialto.—This property at Central City was purchased by C. K. Colvin of the Cook Mining Company, and transferred by deed to W. H. Davis, trustee, of Denver, for $40,000. The property was worked up to 5 years ago. A strong company has been formed and a new shaft building is to be put up and new machinery used.

Straub.—S. W. Miller of Chicago has taken a lease and bond on the Straub, Straub Extension and Press lodes in Eureka District, also on 200 ft. of the Ashtabula Claim, to be worked with the East Whiting.

Lake County.

(From Our Special Correspondent.)

Leadville Pumping Association.—May 1st will see the drainage of the downtown mines completed. The pumps at the Coronado, the property which was burned during the strike riots, will be adding 500 gal. per minute to the flow in a few days. The property will resume shipments by the Coronado Mining Company, in which Washington parties, including Admiral Sampson, are interested. The first level at 520 ft. is already above water. This level connects with the Sixth Street, which was worked before the labor troubles. The shaft is 600 ft. deep and is within 25 ft. of the second contact.

Scarcity of Timbers.—The larger share of timbers for the camp comes from the Frying Pan section on the Midland Railroad, and this road, which has been blocked for 80 days, was opened on the 15th. The demand far exceeds the supply as every mine in the camp is out of timber, but the situation is much better.

Big Four.—This company, Chicago parties, has reorganized and incorporated as the Big Four Gold and Copper Mining Company, with capital stock of $1,250,000. The incorporators are W. H. Frankle, L. Z. Farwell, R. A. Sweet, J. I. Case and J. W. Henney. The company intends to sink the shaft deeper. Shipments are suspended owing to bad roads. The Fanny Rawlings property, adjoining, is worked through the Big Four shaft.

Henriett Mining Company.—This company's properties, including the Henriett Lode and a 7-16ths interest of the Maid of Erin Lode, were sold this week at sheriff's sale to John Munson for $190,000 to satisfy a judgment secured by Munson in the United States Circuit Court of $7,704 for injuries sustained while at work on the property. The accident occurred in 1882 and this sale by no means ends the litigation.

Ibex Mining Company.—Only a very small amount of development work is being carried on and not a pound of ore has been shipped for over 2 months. Workmen are overhauling the machinery and getting the plant in good shape. The loss in tonnage has been very heavy, and it will be some time before regular shipments can be resumed. In addition, the shortage of timber has held back important development work.

Weston Pass.—It will be June 1st before work can be resumed in this locality. From the Ruby the principal mine, owned by Chicago people, comes the news that the smokestack of the engine house is buried in snow and this is 24 ft. high. No signs of the mine are to be seen.

Pitkin County.

Aspen Mining and Smelting Company.—About 80 claims on Aspen Mountain belonging to this company were sold at public auction recently, in pursuance of a judgment rendered by the United States Court in favor of the Wood heirs. The property was bid in by the Wood representative, Mr. Hubbard, for $23,000.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Mining news is rather scarce; work is progressing as usual and the outlook is very bright. The March production, while all the official reports are not in yet, bids fair to equal if not exceed that of the closing months of '98.

The Lillie has completed its improvement and is a regular shipper again. The Strong at Victor, which began shipping the first of the year, has continued since. The Victor, which has not been shipping very heavily of late, is now reported to be in better condition. The Jack Pot is a heavy shipper, and will probably continue to be if not stopped by litigation. The Wild Horse, on Bull Hill, controlled by the Woods Investment Company of Victor, has developed into a shipper in the past few months. The region on the north slope of Bull Hill near Grassy Gulch is now making quite a reputation with the Pinnacle, Damon and other recent strikes. Tenderfoot Hill has now a shipper in the Hoosier and a strike is reported on the Galena on Red Mountain. The Isabella has resumed its payment of dividends on a larger scale than formerly. The Moon-Anchor is now controlled by an English syndicate and is doing considerable development work. No dividends have been paid this year by the company. The Victor has also stopped paying dividends for the present. The Elkton has not yet resumed dividends. The Independence Town and Mining Company has put its large working shaft down about 550 ft., and is getting ready to put in the new hoist. The Lucky Cuss has its new hoister in and the shaft straightened. The Abe Lincoln in Poverty Gulch is not at present doing very much. The Gold King, in Poverty Gulch, has entered the list of dividend payers.

Goldfield Air Compressor.—The large compressor at Goldfield, put in by the Moffat people, was started a few days ago. It is an Ingersoll-Sergeant, with a capacity of 25 drills at this altitude. This compressor is to supply air to the properties in the vicinity of Goldfield belonging to the Moffat people; the Granite, Gold Knob, Legal Tender, and probably before long the Victor.

IDAHO.

Idaho County.

Big Buffalo.—According to recent reports this claim, reported bonded to a Spokane man for a large sum, is not the bonanza it was thought to be. A shaft down 30 ft. is reported to show

much less promising ore than that on the surface.

Boston & Buffalo Idaho Consolidated Gold Mining Company.—This company has 7 claims in the Buffalo Hump District on which it proposes to do some work when the snow is off the ground. The officers of the company are: Galen L. Stone, Boston, president; Francis E. Young, vice-president and manager; A. A. Winslow, secretary. The present offices of the company are in Boston and in Buffalo, Ida.

Shoshone County.

Bell.—At this property, near Mullan, 2 shifts of 5 men each are driving the lower tunnel, which is to be 1,200 ft. long, giving a depth of 450 ft. Drifting on the lead from the upper tunnel shows good ore. A wagon road is to be opened to the mine from the Gem mill.

Standard Mining Company.—According to a local newspaper, this company with $500,000 capital that has a mine and mill near Wallace, now owns 8 claims, several of which, however, are small fractions. The silver-lead vein is worked through a tunnel 2,800 ft. long. The ore shoot is 500 to 600 ft. long and from a few inches to 40 ft. thick. On the tunnel level a shaft, or more properly a large winze, is being sunk which may go down over 1,500 ft. The boilers and the air compressor are at the mouth of the tunnel. The concentrator has been gradually enlarged since built and has a capacity of 500 to 550 tons of ore every 24 hours.

ILLINOIS.

Montgomery County.

The mine operators of the fourth contract district, which comprises the towns of Litchfield, Hillsboro, Panna, Witt, Woweaqua, Assumption, Taylorville and others, at a meeting on April 14th drafted a wage scale for the top men for the ensuing year. The committee was composed of E. Payne, Thomas Butts and Jacob Mummee on behalf of the miners, and A. G. Kleinbeck, of Linton, and D. D. Shumway, of Taylorville, on behalf of the operators. The following scale was adopted: Slack men, $2; top men, $1.75; drivers, $2, and a scale of 40c. for miners. This is an increase of 25c. for drivers and slack men, but otherwise is the same as the scale in force prior to March 31st.

INDIANA.

Greene County.

Hoosier Coal Company.—This company, composed of Senator Newby of Knightstown, County Clerk Yahey, Elmer E. Neal and C. Adams of the Summit Coal Company, and Indianapolis and Chicago parties, in connection with the Summit Coal Company, has bought coal lands to the amount of 480 acres near Linton. The price ranged from $30 to $50 per acre. One or two new shafts will be sunk this season.

MICHIGAN.

Copper.

Arcadian.—The amount spent for improvements on this property will amount, it is said, to $1,000,000 before January 1st next. Orders are placed for steel compressor, boiler, engine and shaft houses. Much of the material is already on the ground, and the erection of some of the steel buildings will begin at once. The new hoisting plant for No. 1 shaft, capable of working to a depth of 1,200 ft., will be put up soon. The big hoist for No. 4 shaft will arrive in June. The mine is now working 55 air drills, and this number may be increased to 90 before the summer is far advanced. The new blacksmith, machine and carpenter shops, of steel, will be located east of the present shops. Within a few weeks the opening of a shaft on the old Douglass property, north of No. 1, will be under way, the necessary machinery being already provided.

Calumet & Hecla.—The 38th, 39th and 40th levels of Hecla shaft No. 6 caved in last week. The ground was largely stopped out and but little work had been under way there of late. Four men were injured.

Isle Royale.—A contract has been placed with the Wisconsin Iron and Bridge Company of Milwaukee for a steel engine and compressor building, to be erected by August 1st. The engine and compressor house at No. 1 shaft is of stone and steel.

Michigan.—New machinery has been ordered and men are cleaning out the old adit on the Rockland branch of the property. The company is contemplating the sinking of a new shaft there.

Osceola.—Good progress is being made on the new mill which is expected to be ready by June 1st. The big pump, which has a capacity of 40,000,000 gal. in 24 hours, is being installed.

South Range Railroad.—Choppers will shortly start to clear the timber and underbrush for a width of 100 ft. along the right-of-way, and camps will be located along the entire length of the road about 2 miles apart. Sub-Contractor Lee, who will build the entrance of the road to Houghton, is collecting his working outfit and the end of April will see his work well under way. No trouble is anticipated in securing workmen.

Iron—Marquette Range.

Cleveland-Cliff.—At the Cleveland Lake Mine, owing to the large amount of water that has run into the old basin of Lake Angeline from the Spring thaw, work in some of the levels below the lake has stopped till the danger from a rush of mud is over.

Jackson.—This mine, at Ishpeming, together with the Rolling Mill and Negaunee, has been taken by the American Iron and Steel Company. The ore is mostly siliceous, and will be used as a mixture for the output of the company's great Sauntry mine on the Mesabi.

Queen.—The Oliver Mining Company, of Pittsburg, Pa., a Carnegie interest, has secured a 20-years' lease from Corrigan, McKinney & Company, Cleveland, O., of this mine at Negannee.

Iron—Menominee Range.

Florence.—S. T. Beattie, superintendent, is in New York City to consult with Ernest Thalman about opening the mine at once. Men have already been put to work repairing shaft houses. It is expected that 150 men will be put to work as soon as possible.

Pewabic.—This mine, at Iron Mountain, has begun shipments to the Escanaba docks for the season.

MINNESOTA.

Iron-Mesabi Range.

(From Our Special Correspondent.)

Adams Iron Company.—This mine has now 3 stockpiles, aggregating some 220,000 tons, and shipments will not begin for some weeks. It is good for about 500,000 tons this year.

Explorations.—At present John T. Jones has 4 drills in the Miller lands, near the north and west parts of the range. C. D'Autremont has 4 drills working in section 24, T. 58, R. 20, near the property he and associates sold not long ago for $13,000. W. T. Bailey has 1 drill close to the Sauntry, on his mill site, and has opened some good ore. E. J. Longyear has 3 drills in section 20, T. 58, R. 19, and there are others scattered over the range. The Steel and Wire will begin explorations with a number of crews as soon as the season is a little more advanced.

Fayal Iron Company.—This mine has begun shipping to dock in order to lessen the pressure on stockpiles, and will continue steadily, though there is no hope of navigation opening for some weeks. There are some 500 men employed in the stripping.

Roberts Iron Company.—This mine is shipping about 12 cars of ore a day to the Two Harbors docks. It is being pushed to the utmost.

Biwakik Bessemer Company.—Stripping has begun under the contract of the Drake & Stratton Company, of Pittsburg, Pa.

Genoa Iron Company.—Tracks have been graded to No. 2 shaft, which will be a large producer this season.

Sparta Iron Company.—Stripping at this mine has begun with one shovel. Mining will not be undertaken till next month.

Iron-Vermilion Range.

(From Our Special Correspondent.)

The town of Ely expects that its mines will ship not far from 1,600,000 tons this year, which gives the Chandler 900,000 tons and the Oliver group 700,000 tons. It is safe to say that this total is too large. It would be 345,000 tons more than the entire Vermillion range has ever shipped in a year.

Explorations.—All known ore lands for a radius of 6 miles around Ely, and between that place and Tower, have been taken and are either now under exploration or will be as soon as the weather becomes more settled. W. H. Cole, a well-known diamond drill man, has drills at work for A. C. Ely in section 15, T. 63, R. 11. M. H. Alworth is exploring in section 22, T. 63, R. 11. Wm. Besson is working in T. 63, R. 10, and the Mahoning Ore Company, under W. C. Agnew, is working in section 36, T. 63, R. 13, a school section. There are other explorations in the district, and more activity than since the Mesabi was found.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

The week ending April 15th was in many respects one of the most remarkable in the history of the mining district, and jack reached the highest point ever known, selling at $51.50 for fancy grades. Buyers claim that the smelteries had to have large quantities of high grade ore to fill contracts, but there seems something suspicious in the big advance over the scale prices. It looks very much as if the smelters were arranging to play a trump card. Small operators all over the district have been demanding the association scale for several weeks past and at any time within the past 6 weeks it has been within the power of the Missouri & Kansas Zinc Miners' Association to seriously cripple the smelting interests if they had been disposed to use their power arbitrarily. The moral effect of the present high prices is to convince those who are still outside of the Association that it has little to do with the present price for ore. The Oronogo output sold during the early part of the week at $47 per ton and as it amounted to 1,209,640 lbs. and by far the largest part of the output was sold for that or less money, it will be seen that the top price quoted did not cost the metal men any great amount of money and that they could easily afford to spend a large sum to break up the Association and restore the smelting interests the control of the ore markets which they formerly enjoyed. If there is not a radical change in prices for the worse inside of 60 days, shrewd operators in this district will be badly fooled.

The ore from the Eagle Mine at Belleville and the Pleasant Valley ore sold at $51.50, but outside of these two mines, $50 per ton was the top. The Oronogo ore sold early in the week, as stated, at $47 per ton. Most of the Joplin ore and that from Alba and Hells Neck sold at $48, but more than half the district output brought much less than $47. Lead opened the week at $25, but dropped to $24.50 on April 13th, a decline of $1 per 1,000 from last week's price.

During the corresponding week last year, jack sold at $25 per ton and lead at $21.25 per 1,000, and the output of zinc was less than that of the week just closed by 2,757,460 lbs., but the lead sales were greater by 193,670 lbs. and the value was less by $149,670. For the corresponding 15 weeks of last year the zinc output was less by 24,213,530 lbs., and the lead sales greater by 3,367,590 lbs., but the value was less by $1,352,274. As compared with the preceding week the zinc turnin was greater by 421,000 lbs., the lead sales less by 20,580 lbs., and the value greater by $25,198. Following is the turnin by camps:

	Zinc, pounds.	Lead, pounds.	Value.
Joplin	2,126,110	317,510	$58,964
Webb City	716,660	36,970	17,049
Carterville	1,372,830	275,310	37,771
Oronogo	1,209,640	5,780	25,994
Duenweg	446,860	86,900	11,781
Galena-Empire	2,849,750	205,880	67,842
Central City	651,150	25,900	15,298
South Jackson	190,100	.....	4,113
Stotts City	278,530	.....	6,545
Aurora	1,295,000	20,000	21,880
Carthage	44,800	.....	1,075
Belleville	197,980	6,990	4,926
Hells Neck	55,760	.....	1,338
Alba	89,000	.....	2,136
Granby-Newton Co.	235,000	27,000	4,788
Total for week	11,759,180	1,008,240	$281,500
Total 15 weeks	150,632,900	13,625,850	$3,073,524

Brewer & McGehee.—These mines at Tuckahoe were sold this week through the agency of A. P. & H. C. Cosgrove for $20,000, and the property was a bargain at the price, as the owners have netted $800 per week for the past 2 or 3 months.

Mining Sales.—The Wild Rose, on the John H. Taylor land west of Joplin, has been sold for $1,800. D. H. Baldredge has purchased the Sex Brothers mine on the old Mayflower lease on North Heights for $4,000. Allan Hardy of Webb City has purchased 10 acres of the Cherokee lease at Cartersville for $9,000 and will develop the tract at once. Judge Priddy and S. N. E. Priddy of Washington Court House, O., have purchased the Miles, 40 west of Joplin, for $47,000. The Georgia City Mine on the Hart land on North Heights, Joplin, was sold to Kansas City and Topeka parties last week for $7,500. H. E. Davis & Company sold their mine and lease of 5 lots at Roaring Spring last week for $16,000. The Gaither farm of 198 acres, 3 miles south of Duenweg, has been sold to W. B. Logan and Curtis Wright of Carthage for $10,000. The Little Circle Mine and lease of 26 lots at Oronogo, has been transferred to a syndicate composed of members of the Missouri, Kansas & Texas Trust Company. The concern is acquiring some valuable properties at Oronogo, and is undertaking extensive improvements.

Missouri Zinc Fields Company.—This Boston, Mass., company has been organized under the laws of Maine with $1,600,000 capital in 64,000 shares of $25 par value each, divided into 16,000 preferred 8% cumulative and 48,000 common. The prospectus of the company states that the company has 440 acres of land about Caterville and Webb City. The promoters are Colley & Company of Boston. The officers are: President, C. Minot Weld; vice-president, Francis Peabody, Jr.; treasurer, A. B. Silster, all of Boston: secretary, W. E. Colley Providence. The directors are the foregoing and Frederick E. Clarke, Lawrence, Mass.; Chas. A. Hopkins, Boston; George U. Crocker, Boston, and Lawrence Whitecomb, Boston.

MONTANA.

Cascade County.

Queen.—This mine, at Neihart, has been closed till the proposed concentrator is ready. The workings are reported to show a large amount of milling ore. W. G. Conrad, of Butte, is owner.

Flathead County.

Keystone.—This property, at Libby, has been consolidated with the Goldflint, and the two will be worked by the Keystone Consolidated Mining Company. There is a 20-stamp mill on the Goldflint and a 10-stamp mill on the Key-

stone, and it is the intention of the new company to combine the two mills and operate the combined plant by water power instead of steam. At present but 6 men are employed, under Superintendent Jesse Coulter.

Snowshoe.—Development work is being pushed in this mine, at Libby. A winze is down 120 ft., with a station at 100 ft., from which drifts are run north and south. The face of the long tunnel is in nearly 1,400 ft. Drifting is also in progress in the parallel vein, which was crosscut some time ago, and work is being prosecuted on the reservoir dam, to get it into shape to hold the melting snows.

Granite County.

Basin Gulch Placer.—Messrs. Spees & Allen have sold to Paul A. Fusz, of the Granite-Bi-Metallic Company, a considerable area of placer ground in Basin Gulch not far from Philipsburg.

Granite-Bi-Metallic.—Several carloads of steel rails for the tramway from the Granite hoist to the ore bins at the Bi-Metallic Mine have arrived and work on the tramway will begin soon.

Madison County.

Madisonian.—A 50 H. P. boiler and new pump have been put in by Frank Turner, who has charge of the property.

Park County.

Bear Gulch Mining Company.—George Welcome of Horr and George Phillips of Bear Gulch have sold this company several claims in Bear Gulch. The company is said to have a 30 stamp mill busy and, according to reports, has a very fair vein of free milling ore. Harry Bush is at the head of the company.

NEW MEXICO.

Colfax County.

Moreno Placer Mining Company.—H. H. Argue, president and manager of this company, is in Elizabethtown. He has started work preparatory to the season's placering. A large number of men are at work on the ditches.

Taos County.

Copper Hill Mining Company.—This company, which owns 4 claims at Embudo, informs us that it has a shaft down 180 ft. and 240 ft. of cross cut. About 500 tons of rock taken out in the development are on the dump. A recent telegram received in New York states that the Oxide King cross cut has cut 6 ft. of good ore. A 50 ton concentrating plant is to be erected and the concentrates will be shipped to the Pueblo Smelter. The officers of the company are: Peter M. Wise, president; Floyd B. Wilson, vice-president and counsel; Simon L. Phillips, secretary and treasurer, all of New York City; J. K. Turner, resident director and general manager, Rinconada, N. M. The directors are the foregoing and Ernst G. Timme, Washington, D. C.; George D. Meiklejohn, Washington, D. C., and Chas. T. Thayer, New York City.

NORTH CAROLINA.

Cabarrus County.

(From Our Special Correspondent.)

Fritz-Honeycut.—This gold mine is expected to start, as well as the mill and chlorination works.

Montgomery.—This gold mine is being opened up by Fred. H. Stith, of Concord, N. C.

Nugget Gold.—This gold mine has opened a vein carrying copper, gold, silver, lead and zinc. The tributers continue to find nugget and dust gold in the alluvial washings.

Granville County.

(From Our Special Correspondent.)

Boston & Carolina Copper Mining Company.—This company continues to work its mine near Blue Wing P. O. It is shipping copper ore every week and has installed an air drill plant to enlarge the production. E. A. Bailey, of Boston, Mass., is manager.

Stanly County.

(From Our Special Correspondent.)

Union.—At this mine several hundred men are employed. Machinery is being purchased and erected. Walter G. Newman is the leading spirit. Associated with him are M. Butler and James Phillips, of Boston, Mass. The mine is owned by the Union Copper Mining Company, with $3,000,000 capital. J. J. Newman is the engineer in charge. The mine property adjoins Gold Hill and comprises 500 acres. On the "copper" vein a shaft is down over 100 ft., exposing ore, showing native copper, chalcopyrite, argentiferous tetrahedrite and silver glance with a little gold. A parallel vein shows rich free gold ore and iron pyrites of good value. The vein matter is quartz associated with calcite, barite and siderite.

OREGON.

Baker County.

Bunker Hill.—According to local papers Capt. C. H. Thompson, of Spokane, and Angus MacQueen, of Butte, have bonded the Bunker Hill group for 2 years for $20,000. The group comprises the Bunker Hill, Lilac and Myrtle claims, all owned by T. P. Ready and J. F. Ferguson, of Baker City. The claims are said to be on the same vein as the Golconda and not far from it.

Myrtle Gold Mining and Milling Company.—This company has been incorporated in Baker City, with 100,000 shares at $1 each. The president of the company is Edward Blewett and the secretary Frank A. Cheney, both of Texada Island, B. C. The company has purchased 11 claims near to the Red Boy Mine, as follows: Bob Evans, Reporter, Paymaster, Clara Belle, Katie, Muncy, Gold Cord, Little Gracie, Cob Pipe, Mattie and Beckman. Mr. Blewett, the president, is the promoter of the Van Anda Copper and Gold Company, of British Columbia.

PENNSYLVANIA.

Anthracite Coal.

Susquehanna Coal Company.—At this company's No. 1 shaft, at Nanticoke, last week, a bad cave took place at a point 1,000 ft. south of the shaft. The mine was idle at the time, and as the cave had been expected no lives were lost.

Slate.

(From Our Special Correspondent.)

Bangor Superior Slate Company.—At Sheriff's sale this property has been bought for $25,000 by William Speer and Lorenzo Pearson, trustees for the bondholders. An immediate reorganization is scheduled, application having been made for a charter as the Bangor Star Slate Company. The property contains 75 acres of land and a fully equipped quarry working steadily under lease.

Flory & Lehr.—This hard vein quarry at Bangor will shortly resume under a new lease, after several years' idleness.

Hyatt School Slate Company.—To the factory, at Bangor, a large addition is being erected, increasing the floor space 30,000 sq. ft. The factory will be 100x100 ft., and 3 stories in height. Twenty-five additional woodworking machines in the new department will manufacture school desks, cabinets, mantels and other furniture. The full capacity is 25,000 school slates per day, with 250 hands employed.

Mill Stock Manufacturers.—The manufacturers of mill stock in the Northampton and Lehigh regions have joined temporarily in maintaining prices. The association is expected to be permanent.

North Albion.—This property at Bangor was sold at trustee's sale to E. P. Buzzard, of Bangor, for $800. It consists of an 18 acre tract and partly developed quarry.

Pen Argyl Valley.—A new bed is being uncovered at this quarry, where contractors are removing 10,000 yards of top. The work will require 8 months for completion.

SOUTH DAKOTA.

Lawrence County.

(From Our Special Correspondent.)

Homestake Mining Company.—The new cyanide plant at Lead is practically completed. It will have capacity of 30 tons of concentrates per day, and will save several thousand dollars per month freight to Deadwood smelter.

Ragged Top.—The snow is still 2 ft. deep in this camp. The mines at the head of Squaw Creek have shut down hauling ore to Crown Hill Station on account of the roads. The shaft being sunk by the American Mining Company on the Dacey is down 505 ft. Work has stopped to put in a large steam pump.

Spearfish Cyanide Plant.—The stucco mill at Spearfish has started up with a summer's run of orders ahead. The cyanide plant is running steadily.

Pennington County.

(From Our Special Correspondent.)

Bismarck Mill.—The new concentrating mill on Battle Creek, 1 mile west of Keystone, by the Big Hit Mining and Milling Company, has made its first run. It has a capacity for 200 tons daily and cost about $150,000. The ore from the bins goes to a Gates crusher, next into a trundle and thence into 5 large Krupp mills. Pulp is carried to sizers, thence to the concentrators. At the mine the main shaft goes to 122 ft. level, double compartment, hoist capable of sinking 750 ft. The process of concentrating is new to the Black Hills.

Crown Hill Mining Company.—Work will start soon on the Spokane Mine south of Keystone. Shaft is down 150 ft. and will be sunk 200 ft. deeper. Additional ground has been purchased of Hawk Wright. The new hoisting plant recently completed has a capacity of 500 ft. The company has leased the Harney Peak Tin Mining Company's concentrator near Hill City.

Holy Terror.—The balance of the new air compressor is being put in the Keystone mill. It is stated that the old cyanide plant will be started up. Work has begun sinking the main shaft 200 ft. deeper.

UTAH.

Juab County.

Bullion-Beck.—This mine, at a depth of 1,300 ft. in its workings at Eureka, has tapped a stream of water large enough to supply the hoisting plant, if not enough for the concentrator. The strike is almost as important as a corresponding volume of silver and lead ore, as water in the camp is scarce. The flow at present is about 800 gal. a day.

Salt Lake County.

New Mammoth.—This company at Bingham has bought 10 leaching tanks, each of 85 ton capacity, that were originally intended for use in the Highland Boy mill before the great bodies of copper ore were uncovered there. Manager Rognon is in charge.

Red Wing Mining Company.—The management has taken charge of the old Markham mill, Bingham canyon, and is overhauling and putting it in form for a continuous run upon the milling ores that have been hitherto treated at the Dewey Concentrator. The new plant will enable the company to handle from 75 to 100 tons daily.

Summit County.

Massachusetts.—The purchase by J. H. Conrad of Butte, Mont., of the controlling interest of George W. Chase of North Adams, Mass., in this mine at Park City has been followed by a complete reorganization of the company. W. M. Curtis is president and general manager, and Mr. Conrad is secretary and treasurer. A large force of men is to be put to work and sinking pushed as rapidly as possible.

Tooele County.

Chloride Point.—This mill, at Mercur, which temporarily stopped work owing to the break in the Provo Power Company's line, has started work again.

Golden Gate.—The addition to the mill at Mercur is nearing completion. It is estimated to give a total capacity of 1,000 tons daily. The present capacity is about 750 tons. The contract calls for the completion of the work June 15th.

South Daisy.—The mine is opened nearly 500 ft., and both shafts are running with 3 shifts of men each.

WASHINGTON.

Ferry County—Republic

(From Our Special Correspondent.)

El Caliph.—The shaft is down 53 ft., and the vein shows from 10 to 12 in. of quartz that assays from $140 to $150 per ton, with more or less visible gold. The tunnel is in 273 ft. and may break into the vein about 20 ft. further on.

Gold Leaf.—The tunnel is in 410 ft., the face in porphyrite stained with iron oxide which gives low assays.

Lone Pine.—The northeast drift on the foot wall is in 178 ft., and the present average value of the ore is about $20. The winze from the drift is down 25 ft. in ore that runs from $25 to $30. This looks like one of the most promising properties in Republic.

Lucky Choice.—This adjoins the Gold Ledge, on Gold Hill, 3 miles east of Republic. A shaft is down 30 ft. on a blow-out of quartz, which shows at the surface 20 to 23 ft. wide. The property has been idle several weeks, but work will be resumed soon.

Lucky Consolidated.—A north and south vein is stripped for 100 ft. A shaft 16 ft. deep shows quartz 4 ft. wide assaying from $3 to $6 per ton. An east and west vein, with 2 separate bands of quartz 3 ft. 6 in. thick, with a low dip north, gives some good assays.

Mabel.—A new shaft, 20 ft. west of the old (vertical) one, is down 13 ft., following the ledge. Bright looking quartz 3 ft. thick is exposed.

Mary Ann.—The shaft is down 35 ft. on the foot wall. The ledges carry values of $17 per ton.

Merrimac.—The east drift from the bottom of the shaft is in 100 ft. A surface tunnel from the east side line is running west to tap the continuation of the Mountain Lion center vein.

Monroe.—The tunnel is in 179 ft., and is expected any day to cut the east vein.

Pearl.—Work has been resumed. A drift running north 20 ft. and south 100 ft. on the 11 ft. ledge is in quartz with average values of $9 to $10 in gold. An open cut at the south end of the claim shows 12 ft. of quartz.

Quilp.—The north drift is 60 ft. of the hanging wall. When that is reached an upraise will connect with the shaft.

Republic Consolidated Gold Mining Company.—The winze from the No. 3 tunnel level has cut the vein. The mill is running smoothly, treating 40 tons of ore daily.

Republic Little Giant.—The tunnel is in 92 ft., and bunches of quartz that assay well are coming in at the face.

Rosanna.—The tunnel is in 260 ft. and no change is reported.

San Poil.—The upraise from the No. 2 has connected with the winze from the No. 1 level.

Surprise.—Surface cuts are being opened to find the best place for a permanent shaft. The vein is 6 to 10 ft. wide, with some very good looking quartz. Where the Black Tail tunnel cuts it is 17 ft. wide. Assay samples run from $10 to $22 in gold per ton.

Trade Dollar.—The south drift has been run 36 ft., the ledge showing from 12 to 15 ft. wide and averaging $12 per ton. At the south end, close to the south line, a station is being cut out for sinking a winze on the vein, and there 11 ft. of the ledge assays from $17 to $18 per ton.

Troubadour.—The shaft is down 78 ft., the ledge still showing improvement. A crosscut is going towards the foot wall, and a drift is running south on the vein.

WEST VIRGINIA.

McCalumet Oil Company.—This Pittsburg, Pa., company has bought the producing wells and territory under lease of the Devonian and the Victor Oil and Gas Company. The property lies in Tyler and Pleasants Counties and the principal production is in the Kyle, Wick, Centerviller and Hebron pools. There are 102 completed oil and gas wells on the property, with a settled production of about 300 bbls. a day. In all there are leases on about 12,000 acres, part of which is untested and undeveloped. The consideration, it is understood, was $160,000. The territory is composed of Keener, Big Injun and Cow Run sand.

FOREIGN MINING NEWS.

CANADA.

British Columbia—Atlin District.

(From Our Special Correspondent.)

Atlin, April 1.

The miners are sledding their summer's supply of goods to their camps. About 400 have arrived here in the last month. Six hundred are expected soon via Glenora on the Teslin route. Sleighing has been good and the weather favorable for travel over the trails.

J. D. Graham, gold commissioner, is busily engaged. The receipts at his office have been from $400 to $500 daily. The careless manner in which the books were kept last season has caused many complications in titles. A Supreme judge has been appointed for the Cassiar District. It is understood that he will reside at Atlin.

Most of the development work done this winter has been on Spruce Creek, which is making a good showing. The Walla Walla Company, on No. 22, below discovery, is opening up a drain ditch 800 ft. long. The men say that no one has reached bedrock on Spruce yet and no one knows how rich the diggings are there. The upper gravel will pay from the surface on the Walla Walla claims.

Choice Pine and Spruce Creek claims are selling from $1,500 to $2,000 each, but not many are changing hands.

It is said that when McKinnon & Miller located the discovery claim on Pine Creek they thought it in Northwest Territory. It was subsequently shown to be 30 miles within the British Columbia boundary. Owing to differences in placer regulations in the two districts, etc., titles to about a mile of claims above discovery, many of which have changed hands, will be affected.

The majority of the beach claims will probably wait another year until the creek claims are worked out, unless a company builds a large flume supplying the benches with water.

A good many Americans are leaving Atlin for the Porcupine District. The nearest seaport is at Haines' Mission, 20 miles south of Skaguay.

A Mr. Redmond and Ralph Thompson, with others, located 6 quartz claims last fall about 7 miles southeast of the outlet of Otter Lake, 60 miles from Skaguay. The ore is free milling and assays well, a rich pay streak being 18 in. wide. A ¾ was bonded a few days ago to the Eagle's Nest Mining Company, represented by Messrs. Heaney, Hawkins and Hislop, builders of the White Pass and Yukon Railroad.

The Otter Lake region is bound to show up some rich quartz propositions before Fall. George Pratt has a large ledge on Meadow Creek, about 15 miles beyond the Skaguay River pass. The assays are as high as $100 per ton in free gold. Mr. Stanley of Skaguay has located a ledge in the Dyea Canyon, 3 miles from salt water. He says he has a 4 ft. vein that assays $20 per ton.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Eight Hour Law.—The Provincial Government has decided not to enforce the 8 hours law—to suspend its operations for the present. The opposition to this law has been very strong from mine owners and mining companies.

Mining Certificates.—The gold commissioner of Rossland District, John Kirkup, is on the Pacific coast for his health. In the meantime the government has appointed no substitute and much inconvenience has arisen as it is impossible to get the required certificates. The acting mining recorder is not empowered to issue certificates, and the cost of getting them is to be increased after May 1st.

Slocan Ore Shipments.—The weekly shipments from Sandon mines average 519 tons.

Le Roi.—The management is shipping from 300 to 350 tons of ore daily to the Northport Smelter. The capacity of the gravity tram ore cars is one ton each. Three shifts are at work. To increase this output to 500 tons per day will require additional facilities. Under present conditions the utmost quantity that can be shipped is about 350 tons per day.

Payne.—This Sandon company paid $25,000 as its March dividend.

Porto Rico.—A. B. Irwin, manager of this Ymir mine, has resigned. This mine is the property of the Canadian Pacific Exploration Company. The mine has been closed, owing to the lack of water for the mill. About $30,000 worth of gold has been extracted since it began milling, W. H. Corbould, the chief manager, is in England.

Nova Scotia—Guysboro County.

(From Our Special Correspondent.)

Blue Nose.—This mine in Goldenville District produced in March 425 oz. from 1,101 tons.

C. F. Andrews.—This mine at Stormont returned 183 oz. from 220 tons for March.

Eureka.—This mine, now owned by the Guysboro Gold Mining Company, Limited, of Liverpool, England, has milled 500 tons of ore taken out while the mill was being erected, which returned 500 oz.

Hurricane Point.—This mine in Isaacs Harbor District produced 178 oz. from 201 tons for March. It pays good dividends.

Modstock.—This mine at Forrest Hill, has returned 166 oz. from 270 tons for March.

Richardson.—This mine at Isaacs Harbor milled 2,100 tons in March, which yielded 368 oz., value $7,076, cost of production less than $3,000. The ore came from the lowest level, 300 ft. At this depth the lead has increased materially in thickness, and in yield from $2 to $3.40 per ton.

Nova Scotia—Halifax County.

This mine at Waverly, called the Barrel, with other property adjacent, has been sold to a syndicate of New York capitalists represented by D. C. Hood. The Tunnel property embraces over 200 acres, an dthere are besides several thousand acres of land, buildings and water power rights at Fall River and Fletcher's Lock. The former owners were B. C. Wilson and T. R. Gue, of Halifax. The price paid is not stated.

(From Our Special Correspondent.)

John W. Anderson's mill at Lake Catcha cleaned up 32½ oz. from 40 tons of ore in March.

Klondike.—This company in Hillaw District had a return for March of 90 oz. from 37 tons.

Symonds Thayer.—This mine at Montague has cleaned up a small batch of 31 tons of quartz which gave 45 oz. gold.

Withrow.—This mine at Mount Reniack made returns for March of 89 oz. gold from 150 tons.

MEXICO.

Coahuila.

Veda Rica.—At this silver mine, in the Sierra Mojada District, 50 miles south of Presidio, Tex., an explosion followed by a fire cost the lives of 12 men recently.

Durango.

Luster-Mining Company.—This company, at its annual meeting in Pittsburg, Pa., elected the following officers: President, H. D. Gamble; vice-president, John H. Mueller; treasurer, William H. Graham; directors, S. H. Murray, M. K. Salsbury, Thomas R. Pittock, H. M. Preston, Alexander M. Black and Nicholas Raiber. William T. Koch is superintendent. The capital stock of the company is $1,000,000.

Mexico.

Mexican Esperanza Gold Mine.—This company is being floated in London to take the Esperanza Mine. The mine has a 40-stamp pan mill and a cyanide plant. The net profit from milling, according to the prospectus, since 1896 has been $503,640. It is intended to increase the milling capacity to 5,000 tons per month. The prospectus states that the cash price to be paid by the vendor syndicate to the present owners is £622,000 and they are reselling to the company at £803,000, £653,000 payable in cash.

(From Our Special Correspondent.)

La Esperanza Mining Company.—Wernher Beit & Company, the London bankers, who hold the option on the Esperanza at El Oro, which expires on April 25th, have asked for an extension on their option and for a lower price. The directors of the Esperanza have decided to give the syndicate until May 1st to take up the property, but have refused to lower the price, which is $5,000,000 gold or $6,000,000 silver. By the original terms of the option unless the London firm takes the property at the specified time they lose the $100,000 gold paid for the option.

Sonora.

(From Our Special Correspondent.)

Coal Fields.—R. B. Hoes, a mining man with experience in the coal fields of New Mexico and Colorado, is testing the San Marcial coal fields, about 30 miles from La Bonancita. He has recently brought in a carload of machinery and is using a diamond drill. Mr. Hoes is working in the interests of Chicago parties.

COAL TRADE REVIEW.

New York. April 21.

Anthracite.

The two most important events of the week have been the meeting in New York of the sales agents of the anthracite roads to settle on a spring schedule of prices, and the meeting of the Anthracite Operators Association. As has been noted before, the producing interests seem to be more harmonious just now than is usual at this time of year, and production, in view of the large amount to go West when lake navigation opens, is being held down pretty well. Consequently, the schedule of prices announced is not thought unreasonable. In fact, its moderation is noteworthy in a time when values on nearly all products are higher than for several years. But a higher schedule, in view of the productive capabilities of the collieries would simply tempt secret rebates or open cuts; besides, bituminous coal is going to be just as cheap this year as last, from the present outlook. Even as matters are, it is well known that stove coal has been selling for below $3.60, and it will not be strange if before next September some company, influenced by the general prosperity, attempts to dispose of more coal than other interests think proper. As to the Delaware, Lackawanna & Western, the new management will have to make the road's coal business profitable, and if it gets a chance to dispose of coal at a profit will probably not neglect the opportunity.

The smaller independent operators seem to be in a bad way. The interests that have been foremost in the fight for more favorable transportation facilities having gone over to the enemy, those of less influence will have to take what they can get. The New York, Wyoming & Western Railroad is still a rather remote possibility, and the main lines are in a position to name take-'em-or-leave-'em rates.

The demand for anthracite in Lake Superior territory, at Chicago and at lower lake ports has fallen off with mild weather. There is coal enough to supply local needs till navigation opens, and buying is moderate, though at Chicago much better than usual at this season. It now looks as if the ice would be out of the Straits of Mackinac and the Sault sooner than anticipated, although no coal will go into Lake Superior till May.

Transportation contracts from Buffalo to Chicago are being taken at 30c. a ton. The rate to Superior ports is likely to be affected by the very large amount of iron ore to go forward this season, and the control of vessels by the iron mining companies. In the rush to get iron ore down it may be that vessels will prefer to go back empty rather than take coal at a low rate.

Trade at Eastern points is decidedly of a hand-to-mouth order. No one is in a hurry to buy, and prices are known to favor consumers, especially on the larger sizes, though there is little talk of cutting. Stocks have accumulated, but this does not trouble producers much, as most of the coal mined in May and June is expected to go inland and up the lakes. The new schedule of f. o. b. prices at New York is as follows: Broken, $3.15; egg, $3.35; stove, $3.75; chestnut, $3.75. It is stated that the average f. o. b. price of stove coal at New York in February was $3.54 and in March $3.45.

Note of the Week.

At the annual meeting of the Anthracite Coal Operators' Association, on April 19th, it is stated that steps toward beginning work on the New York, Wyoming & Western Railroad were taken. Mr. J. L. Kemmerer, secretary and treasurer of the road, has stated that rails enough for 30 miles of track are bought, and arrangements made to run the road from Scranton, Pa., to Delaware Water Gap. He also stated that enough outside funds are at hand to make up for the loss of the Simpson & Watkins interests, and that more than $1,000,000 has been subscribed. The road will not compete with present roads, but will be simply a collecting agent for the independent operators of the Wyoming District. The line as surveyed is practically parallel to the Delaware, Lackawanna & Western, though slightly shorter. The matter of renewing contracts with the anthracite roads for hauling coal, the 7-year agreement having just expired, was left with the officers of the association to settle.

The following officers were elected: William Connell, Scranton, president; Dr. H. M. Howe, Philadelphia, vice-president, and H. S. Fleming, New York, secretary and treasurer. The old board of directors was re-elected.

Bituminous.

The chief event of the week in the seaboard soft coal trade has been the expected drop in ocean freights. So many vessels arriving at Philadelphia and the Chesapeake Bay ports found no coal awaiting shipment—owing to the heavy movement from New York Harbor—that freight rates fell down hard. The lower rates

as yet, however, have not brought many orders, as consumers in many cases have coal enough to allow them to wait a bit. It is understood that a considerable number of orders will be placed so soon as rates get to a basis of 60c. from Philadelphia to Sound ports. Rates from mines to tide seem to be maintained at the schedule of April 1st. The reorganization of the Baltimore & Ohio has had no effect in the coal trade yet, as the new board of directors probably have much more important matters to attend to now than the road's policy on coal freights. Generally, trade has fallen off a bit. The shoal water ports are all open, and many are taking coal enough to tide them over till the regular stocking-up time. It is in the far East, in fact, that there is most competition for business.

Export trade has fallen off and is now limited to contract business.

Transportation from mines to tide is fair, and car supply improves as the press of orders for immediate delivery falls off.

Ocean freights, though lower, are not attracting very much business, and vessels are in plentiful supply, with little coal waiting shipment. We now quote current rates from Philadelphia as follows: Providence, New Bedford and the Sound, 65c.; Boston, Salem and Portland, 75c.

Prices are generally unchanged; $1.60@$1.65 for best grades at Chesapeake Bay ports.

Birmingham, Ala. April 17.

(From Our Special Correspondent.)

There have been no changes in the conditions in the coal market in this district. The demand is quite active notwithstanding the warm weather setting in. The many industries in the district are keeping up with their steady consumption, while the railroads also create a good demand. The prices being brought for the product are satisfactory and the prospects are bright. The summer months are about to set in, but many of the producers have no fears of a change in conditions, for it is believed that many of the larger consumers in this and adjoining States will lay in their next winter's supply, which will mean a large quantity of coal to be mined during the heated term.

There seems to be no changes in the output, which is heavy and steady. The complaint that water was interfering with the work in the mines is no more heard. The mines are in need of miners, though there are not many vacant rooms in the mines. The Tennessee Coal and Iron Company has not yet located its two new mines at Pratt City.

Chicago. April 19.

(From Our Special Correspondent.)

Anthracite Coal.—Gradually the condition of the hard coal market in point of sales is getting back to its usual warm weather quiet. There is yet, however, a splendid business being done, and not in years has this season of the year been so productive as the present one. Purchases of coal, though not exceeding a few carloads at the most to one person, are quite numerous, and a good aggregate of coal is moving. Coal stocks in and about Chicago are extremely light, 40,000 tons being a good estimate of the supply now on the docks and yards of the city, and very little of this is chestnut coal. Last year at this time there was fully seven times as much coal here as this year, and which will go to show that the coal market so far this year has been one of the best in recent years. May circular will soon be out, and expectations have it that prices will be slightly decreased from present ones, which are $5.25 for egg and stove, and $5.50 for chestnut.

Bituminous Coal.—Sales have diminished somewhat, owing to warmer weather and the smaller demand for coal for heating purposes. Coal for manufacturing purposes continues to be absorbed in a way showing that there has been no diminution in manufacturing lines, and the prospects are for a continued fine business. The better grades of soft coal have fallen off in demand, but to no appreciable extent. Plenty of soft coal is now coming to town, the producing States shipping very feely. Prices are well held up, and do not appear to go lower nor higher.

Coke continues rather scarce, particularly the better grades of this article. Prices are firm.

Pittsburg. April 13.

(From Our Special Correspondent.)

As usual, the miners are having their troubles, and the end it not yet. The differential question is still being agitated, and it is considered probable that a strike may take place in the Fourth Pool before the matter is finally settled. The thick-vein diggers are very much worked up over the situation, and it is likely that, unless the operators at their conference with the diggers on Thursday next reach some amicable settlement of the matter, the Fourth Pool men will take the matter out of the hands of the officials of the union and settle it themselves in their own way. The demand for coal is increasing, and purchasers are offering an advance of 25c. 100 bu. for Fourth Pool coal. Some operators are holding off for higher prices; and large Lake shippers are not purchasing any coal at present, but waiting for better prices.

Captain S. S. Brown, an excellent authority in regard to the Monongahela coal combine, is credited with having said that the combination is practically assured; that there are still some signatures to be obtained, but that they are expected within a short time. Preparations are being made to secure a charter. If an existing charter can be found, under which the company can be operated, it will be used; if not, a favorable charter will be used.

Connellsville Coke.—A short car supply was responsible for a lighter coke trade last week. The first days of the week indicated a larger trade, but the turn of the week found a scarcity of cars, and the week's report shows a falling off in shipments of 63 cars. The demand for coke was brisk all the week and had cars been more plentiful the shipment would have gone over the 10,000 car mark. The conditions reigning in the region are practically now what they have been since the beginning of the spring with indications of continued increase. For the week of 18,653 ovens, 16,394 were active. The H. C. Frick Coke Company has now in blast at Alverton plant 60 ovens, and 25 are drying out preparatory to going into blast at Sterling No. 2. Brown & Cook have fired four ovens at Nellie. The Dunbar Furnace Company drew the first coke from the ovens fired at Hill Front. The shipments from the region were as follows: To Pittsburg, 3,092 cars; sent West, 5,086 cars; to points East, 1,715 cars; total, 9,893 cars.

The Oliver Coke and Furnace Company is preparing to build a car works at its plant in Uniontown, Pa., at which to construct all the cars used about the works. The building now under way is 25 by 125 ft., and it will be increased to meet the demands of the works for cars.

SLATE TRADE REVIEW.

New York April 21.

Increased activity is reported at the various producing centers and demands for mill stock and roofing slate has also improved. In switchboards there have been many purchases, but as supplies are rather limited deliveries will be slow. School slates and blackboards are in good request, and as noted last week, several concerns are asking somewhat higher prices. As regards roofing slate prices are variable, and in many instances are cut below the level of 1898. Why quarrymen continue to pursue this policy in the face of short stocks we cannot understand, and it must certainly prove detrimental to them by the end of the year when their books are balanced. Now that milder weather is at hand and building operations are being extended quarrymen and dealers as well ought to exercise some judgment in their business.

Blackboards are quoted from first hands at 10, 11 and 12c. per sq. ft., according to size, while second hands ask 1c. more. Billiard table tops are quoted at 18c. to 25c. per superficial foot, as to quality and class of work required. Large buyers can doubtless shade these prices. Some makers quote marbleized slate as to quality and workmanship, at 40@80c. per superficial foot, while others are understood to be selling at less. Pencils made from ground slate and other ingredients vary in price according to size (5 in. to 7 in.) from $1@$1.50 per 1,000. Discounts are allowed large buyers.

Slaters' supplies are quoted about as follows: Machine for punching and cutting slate to pattern, $25, f. o. b. factory; hammer, $3; ripper, $1.75; stake, 75c.; slaters' felt, 500@600 sq. ft., 65@90c. per roll; elastic roofing cement, 3@7c. per lb., according to quantity, all prices at New York.

We are pleased to note that the slate industry of Georgia is soon to be developed to a profitable point. We have seen a sample of the slate, which presents a fine appearance, is dark black in color, has a good, clean surface, and as it contains only 5.78% protoxide of iron, it is a better non-conductor of electricity than many of our Northern slates.

Speaking of the export trade, it may be noted that there were sent from New York in March $96,536 worth of various kinds of slate, as against $91,889 in the same month last year, and $37,622 in March, 1897. For the quarter ending March 31st, 1899, the exports from New York amounted to $221,557, showing a decrease of $7,294, as compared with the same period last year, but there is an increase of $8,253 over the first three months of 1897. The slate exported from this port in March, 1899, as compared with February showed a falling off in the movement to the United Kingdom and Australasia. Among the countries receiving slate during the month were the United Kingdom, $61,909; Germany, $21,320; Belgium, $3,325; Denmark, $2,804; Australasia, $2,450; India, $2,065; Holland, $920, and Africa, $489. The shipments of roofing slate to the United Kingdom during March aggregated 283 carloads, equivalent to about 14,150 squares, chiefly to London. Those to Germany amounted to about 95 carloads, or 4,750 squares, mostly to Hamburg. Denmark's receipts were principally roofing slate, while Belgium imports consisted of 319 boxes of slate slabs. About one-half of Australia's imports was roofing slate. A small quantity of roofing slate was also sent to the West Indies. Other manufactures of slate went to Holland, Africa, Newfoundland and Norway, and of these much the larger part was school slates.

The roofing slates exported from New York to the United Kingdom in March had an average invoice value equivalent to $5.21 per square, as against $4.41 in the previous month and $5.06 in January. The shipments in March to Germany had an average value of $5.45 per square, or 55c. less than the previous month, but as compared with January there is an increase of $1.45 per square in March.

The exports to Denmark had an average value of $5.67 in March, against $4.67 in January. As regards the selling price of roofing slate in the principal foreign cities, we believe the following figures would be a fair average for the month of March: London, $4.50 per square; Newcastle, $2.75; Bristol, $3.40; Hamburg, $3.50; Bremen, $4.50; Stettin, $4.35 per square. The freight market continues unchanged, although we have heard of business done at slightly higher rates than are quoted below, but they have been mainly on small lots.

To London, 12s. 6d. ($3), or about 86c. per square roofing slate; Liverpool, 12s. 6d.; Manchester, Bristol, Leith and Hamburg, 15s. ($3.60), or $1 per square; Newcastle and Hull, 17s. 6d. ($4.08), or $1.17 per square; Copenhagen, Denmark, 17s. 6d., all with a 5% primage per ton weight. To Bremen the rate is 15s. net ($3.60), or $1 per square. To Sydney, New South Wales, 15s. net is asked for roofing slate in cases or in bulk.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries is given below.

Prices of Roofing Slate.

Size, inches	Monson or Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Gr'en.	Red.
	$	$	$	$	$	$	$	$	$
28 x 14	.....	.....	.....	.....	.....	.....	2 40	.....	.....
26 x 14	.....	.....	.....	.....	.....	.....	2.40	.....	.....
24 x 16	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 15	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 14	6.10	3.35	2.75	3.10	3.50	4.85	2.40	3.50	.....
24 x 13	.....	.....	.....	.....	.....	4.85	.....	.....	.....
24 x 12	6.60	3.35	2.75	3.10	3.50	5.00	2.40	3.50	.....
24 x 10	.....	.....	..	.....	.....	5.00	.....	.....	.....
22 x 14	6.10	.....	.....	.....	.....	5.00	2.30	3.50	.....
22 x 13	.....	.....	.....	.....	.....	5.00	.....	.....	.....
22 x 12	6 60	3.50	2.75	3.10	3.50	5.00	2.50	3 50	..
22 x 11	6.50	3.50	3.00	3.10	3.75	5.00	2.50	3.75	.....
20 x 14	6.40	...	.....	.....	..	.....	2.30	3.50	.....
20 x 13	.....	.....	.....	.....	.....	5.00	.....	.....	.....
20 x 12	6 90	3.50	3.00	3 10	3.75	5.00	2.50	3.75	.....
20 x 11	6.80	.....	.....	3.35	.....	5.00	2.50	3.75	.....
20 x 10	6.80	4.00	3.25	3.35	3.80	5.10	2.75	4.00	10.50
18 x 18	.....	4.00	.....	.....	..	.....	.....	.....	.....
18 x 14	6.50	...	.....	.....	.....	.....	.....	.....	.....
18 x 12	6.80	3.50	.....	3.10	.....	5.00	2.40	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	5.00	2.40	3.75	.....
18 x 10	7.20	4.00	3.25	3.35	3.80	5.10	2.40	4.00	10.50
18 x 9	7.10	4.00	3.25	3.35	3.80	5.10	2.40	4 00	10 50
16 x 16	7.00	3.75	.....	.....	.....	.....	.....	.....	.....
16 x 14	...	4.25	.....	.....	.....	.....	.....	.....	.....
16 x 12	6.80	3.50	.....	3.10	.....	.....	2.30	3.50	.....
16 x 11	6.90	...	.....	.....	.....	5 00	.....	.....	.....
16 x 10	7.10	3 75	3 25	3.35	3.80	5.00	2.30	4.00	10.50
16 x 9	7.00	3.75	.....	3.35	3.80	5.10	2.30	4.00	10.50
16 x 8	7.20	4.00	3.15	3.35	3.80	5.10	2.30	4 00	10.50
14 x 14	7.00	4.00	....	.....	.....	.....	.....	.....	.....
14 x 12	6.50	...	.....	.....	.....	.....	2.25	.....	.....
14 x 10	6 60	3.50	3.00	3.10	3 75	5 00	2.25	3 75	10.50
14 x 9	6.50	.....	.....	.....	3.40	4.85	2.25	3.75	10.50
14 x 8	6 69	3.50	3.00	3.10	3.40	4.85	2.25	4.00	10.50
14 x 7	6.40	3.50	3 15	3 10	3.40	4.85	2.20	4.00	10 50
12 x 10	5.80	3.50	.....	....	.....	4.60	2.20	3.25	.....
12 x 9	5.60	..	.....	.....	.....	4.60	2.20	3 25	...
12 x 8	5.50	3.25	.....	3.10	3.25	4 60	2.20	3.25	9 00
12 x 7	5.00	3.60	.....	3.10	3.25	4.60	2.20	3.25	9.00
12 x 6	4.80	3 00	....	3 10	3.25	4.60	.....	3 25	8.50
11 x 10	.....	3.50	.....	...	.....	.....	.....	.....	.....
11 x 8	4 50	.....	.....	.....	.....	.....	.....	.....	.....
11 x 7	4.00	.....	.....	.....	.....	.....	.....	.....	.....
10 x 12	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 x 11	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 x 8	4.00	.....	.....	.....	.....	.....	.....	.....	6.50
10 x 7	.. ..	.....	..	.....	.....	.....	.....	.....	6.50
10 x 6	.....	.....	.....	.....	.....	.....	.....	.....	6.50
9 x 7	3.50	.....	.....	.....	.....	.....	.....	.....	.....

A square of slate is 100 sq ft as laid on the roof.

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. thick, and Peach Bottom 25c. extra per square. Purple sizes run 24 x 12 and 14 x 7, and vary from $3.75 to $4 per square. Variegated and mottled, $2.25@$2.90 per square, according to size. Intermediate red, 14 x 7 and larger, $6; 12 x 6, 12 x 7 and 12 x 8 in., $5 per square, net.

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements, see also page 492.)

New York. April 21.

Heavy Chemicals.—The alkali business has been quieter owing to the glass workers' strike. Caustic soda, domestic high test, continues in

good demand. The same may be said of bicarb. soda, sal soda and bleaching powder. Chlorate of potash is still being manipulated by speculators, and fractionally lower prices than those quoted have been heard. In some quarters it is said English chlorate of potash is scarce and firmer. Of the imports this week we note 310 casks and 55 bbls. English bleaching powder. Domestic receipts at this port were 760 sacks and 66 bbls. soda ash, 100 drums caustic soda, and 59 casks potash.

Quotations are: Caustic soda, domestic, high test, $1.37½@$1.42½ per 100 lbs. f. o. b. works; $1.55@$1.65 delivered. Foreign caustic soda, high test, $1.60@$1.70 delivered, according to test and quality. Powdered caustic soda, 2¾@3c. Alkali, domestic, 65@70c.; sales reported over next fire at 62½@65c. in bags, f. o. b. works; 75@80c. delivered; foreign, 75@80c. Bleaching powder, Liverpool prime brands, $1.50@$1.62½ per 100 lbs.; other brands, $1.30@$1.40. Continental F prime, $1.50@$1.60. Bicarb. soda, domestic, ordinary, $1.12½@$1.25 per 100 lbs. f. o. b. works. Natrona brand, $1.65. "Arm and Hammer" brand, $3.25@$3.50, less the usual discount; foreign, $2.12½@$2.25 per 100 lbs., according to brand and style of package. Sal soda, domestic, 50c. per 100 lbs. f. o. b. works, less the usual discounts; English, 60@62½c. per 100 lbs. Concentrated sal soda, foreign (crystal carbonate), $1.60@$1.70 per 100 lbs.; domestic (mono-hydrate crystals), $1.25 @$1.35 per 100 lbs.; "snowflake," $1@$1.12½ f. o. b. Syracuse. Chlorate of potash, crystals, 9⅛@ 9¼c.; powdered, 9½@9¾c. per lb.

Acids.—Some makers of muriatic acid have recently ceased operation owing to the small demand. Sulphuric and acetic acid are in good request, and blue vitriol is finding a larger market abroad, where it is quoted around $5.30 per 100 lbs. Oxalic acid is being delivered on contract, and imports were 10 casks.

Quotations per 100 lbs. for New York and vicinity are as follows: Acetic acid, commercial, No. 8, $1.30@$1.40; muriatic acid, 18°, $1.10 for drums, and $1.15@$1.75 for carboys; 20°, $1.20@ $1.87½; 22°, $1.35@$2.25, according to quantity and brand. Nitric acid, 36°, $3.50@$4.75; 38°, $3.75@ $4.62½; 40°, $4@$4.87½; 42°, $4.62@$5.25. Oxalic acid, $6.25@$6.50. Mixed acids, according to mixture. Sulphuric acid, 66°, $1.10 for drums and $1.15@$1.75 for carboys. Chamber acid, 50°, in a jobbing way, $11.50@$12 per ton f. o. b. factory. Blue vitriol (copper sulphate), $5.25@$5.50 per 100 lbs. for best grades.

Brimstone.—The market is lower, and arrivals at this port were 1,000 tons. Spot best unmixed seconds can probably be had at $21.50@$22 per ton, while shipments are quoted $20.75. Thirds are $1.50@$2 less.

Pyrites.—Demand is unchanged, and imports were 2,831,361 kilos Spanish pyrites by the Pennsylvania Salt Manufacturing Company.

Spanish pyrites contain from 46% to 51% sulphur, the American from 42% to 44%, and Pilley's Island, N. F., about 50%. Quotations are: American lump ores (basis 52%), $3.25 per long ton f. o. b. mines, Mineral City, Va.; $5 per long ton f. o. b. mines, Charlemont, Mass., and $6.50 per long ton for Pilley's Island, delivered in New York. Fines are $3 per long ton f. o. b. Mineral City, Va.; $4.25 at Charlemont, Mass., and $4.50 for Pilley's Island, delivered in New York. Spanish pyrites, 11@13c. per unit, according to percentage, delivered ex-ship New York and other Atlantic coast ports.

Fertilizing Chemicals.—Some talk has been started with the announcement of a fertilizer combination by the leading Northern manufacturers. Plans are being laid out for such a consolidation, which it is believed will be completed at an early date. It is reported that options have already been secured on a large number of plants, and the work of appraisement is now in progress. The company will likely have a capitalization of $34,000,000, divided into common and preferred stock, the latter to bear a 6% dividend. Among the concerns which are understood to have given options are the Bradley Fertilizer Company of Boston and Philadelphia, which is itself a consolidation of six or seven plants; the Bowker Fertilizing Company of Boston, the Lister Agricultural Chemical Company of Newark, The Read Fertilizer Company of Newtown Creek, H. J. Baker & Company of New York, the Liebig Fertilizer Company, the Crocker Fertilizer Company of Buffalo, M. L. Shoemaker & Company, Sharpless & Carpenter and I. P. Chomas of Philadelphia, the Preston Fertilizer Company of Greenpoint, L. I.; G. W. Grafflin & Son, and several others of Baltimore. There is no doubt that keen competition among these and other concerns have brought about this consolidation, which has been augmented by the increased production of the fertilizer manufacturers in the South, particularly the Virginia-Carolina Chemical Company. It is believed that by economic management the consolidated concern can make a fair profit even at the low prices at which fertilizers have been selling. Sulphate of ammonia is easier, in sympathy with the foreign markets. Domestic gas has recently sold at $2.75 per 100 lbs. Imports of foreign were 2,415 bags, the largest lot at this port for some time. We also received 1,000 bags of muriate of potash and 2,000 bags superphosphates, the latter from Antwerp, Belgium. In export circles there were lately many large requests for high grade blood at prices something less than present quotations.

Quotations are: Sulphate of ammonia, gas liquor, $2.80@$2.82½ (basis of 25%), per 100 lbs.; bone, $2.62½@$2.65. Dried blood, high grade, Western, $1.70@$1.72½ per unit f. o. b. Chicago; New York, $1.75@$1.80 per unit. Azotine, $1.70@ $1.75, basis New York. Concentrated phosphates (30% available phosphoric acid), 57½c. per unit. Acid phosphates, 13@15%, av. P_2O_5, 55@50c. per unit at sellers' works in bulk. Dissolved bone black, 17@18%, P_2O_5, $16@$16.50 per ton. Acidulated fish scrap, $9.75@$10; dried, $18.50@$19 f. o. b. fish factory. Ammonia superphosphates, high grades, $25@$26 per ton. Tankage, high grade, $15@$15.50 per ton f. o. b. Chicago; $18@ $18.50 at New York. Concentrated tankage, $1.40 @$1.42½ per unit f. o. b. Chicago; low grade, $13@$13.50 per ton. Bone tankage, $19.50@$20.50; ground bone, $23@$25 delivered. Bone meal, Calcutta, $25, and domestic steamed, $18.50@$19.50, and raw, $24@$25 per ton.

Potash Salts.—Quotations are on the basis of foreign invoice weights, tares and analysis to the ports of New York, Boston and Philadelphia, as follows, per 100 lbs. in quantities of not less than 500 tons bulk salts or 50 tons concentrated salts: Muriate of potash, 80@85%, basis of 80%, $1.78, and 95%, $1.81; sulphate of potash, 90%, $1.98½, and 96%, basis of 90%, $2.10½; double manure salt, 48@53%, basis ash, 66c., and 30%, 89c. For kainit, testing 12.4% actual potash, quotations are: $8.70@$8.95 per long ton of 2,240 lbs. Sylvanite is quoted at 37@38c. per unit sulphate of potash.

Nitrate of Soda.—Quotations are $1.65@$1.67½ per 100 lbs. for spot, and $1.55 for futures. The demand is limited. Concerning the European situation, the Permanent Nitrate Committee reports exports to Europe in March at 1,782,000 qtls.; loading for Europe, April 1st, 1,726,000 qtls.; imports, Europe, March, 142,700 tons; deliveries, Europe, March, 198,760 tons; visible supply, Europe, April 1st, stocks and afloat, 516,280 tons. As compared with February and January, the imports and deliveries in Europe in March show an increase, while the visible supply on April 1st was 120,750 tons less than March 1st, and 221,600 tons on February 1st.

Phosphates.—Buying is not large just now, and quotations are practically the same as last week. No charters are noted. The producing interests report steady activity in their operations. In Florida a new railroad is projected from Jacksonville to Manatee Springs on the Suwanee River, by the Cummer Lumber Company, which owns large tracts of phosphate and timber land there. In Tennessee new discoveries are reported, and paying rock is said to have been found around Franklin. The Central Phosphate Company in Tennessee continues to make shipments to the foreign market. The latest quotations for American phosphates, c. i. f. United Kingdom or North Sea ports, are as follows: Florida hard rock, 77@80%, 9½d. per unit, or about $14.92 per long ton, all positions; Florida land pebble, 68@73%, 7½d., or $10.50 per ton; Florida Peace River, 58@63%, 7d. per unit, or $8.40 per ton; Tennessee, 78@80%, 8d. per unit, or $14.64 per ton. The Algerian phosphate, 63@ 70%, is quoted for same delivery at 7½d. per unit, or about $9.90 per ton.

Quotations are: Florida high grade, 75@80% rock, $9@$9.50 per long ton f. o. b. Fernandina. The freight rate to New York is about $2 per ton. Florida land pebble, 68@73%, quoted at $5.50@$6 per ton, delivered in New York; South Carolina ground rock is nominally at $5.50 to $5.75 per short ton, delivered in New York; sun dried, $3 per 2,240 lbs. f. o. b. Ashley River; hot-air dried, $3.25 f. o. b. same place, and $3.45 f. o. b. Charleston, S. C. Tennessee phosphate rock, $3.75@$4 f. o. b. mines for export, and $2.75@ $3.25 for domestic brown, and $1.90@$2 f. o. b. for blue or Hickman County rock. Domestic Tennessee rock averages 75%, while for export it runs as high as 83% bone phosphate. The difference in the price of this phosphate and Florida high grade is owing to the higher percentage of iron and alumina in the Tennessee rock.

Liverpool, April 11.

(Special Report of Joseph P. Brunner & Co.)

In heavy chemicals generally prices are well maintained, and makers appear to be fairly busy with contract deliveries. The following particulars of exports for March, 1899, are taken from the Board of Trade returns just published, viz.: Total exports to all quarters, alkali, 302,227 cwts., and bleaching powder, 117,128 cwts.; exports to United States alone, alkali, 63,889 cwts., and bleaching powder, 79,717 cwts.

Compared with the corresponding month of last year, the total shipments of alkali show a falling off of about 2,200 tons, while on the other hand, the shipments of bleaching powder show a marked increase, amounting to about 1,360 tons over March, 1898, the increase to the United States alone being 1,050 tons. Soda ash, while not particularly active, is meeting with a fair inquiry, and further American orders for ammonia soda have been placed this week at the recent advance. We quote maximum spot range for tierces about as follows: Leblanc ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Ammonia ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s. per ton net cash. Bags are 5s. per ton under price for tierces. Soda crystals are generally quoted at £2 17s. 6d. per ton, less 5% for barrels, or 7s. less for bags, although lower quotations are obtainable for certain favored markets. Caustic soda is in fair demand and very steady as follows: 60%, £6; 70%, £7; 74%, £7 10s.; 76%, £7 15s. per ton net cash. Bleaching powder is held for £5 per ton net cash for hardwood packages, but although shipments continue on a large scale, there is not a great deal of business reported on the open market, which is accounted for by the fact that manufacturers are imposing so many shipping restrictions and exporting direct to their agents abroad. Chlorate of potash is rather slow at 3½d. per lb. for crystals and 3⅝d. per lb. for powdered. Bicarb. soda is selling to a moderate extent at varying prices ranging from £5 5s.@ £6 15s. per ton, less 2½% according to destination for the finest quality in 1 cwt. kegs with usual allowances for larger packages. Sulphate of ammonia is in moderate compass, but demand is less active, and for good gray 24@25% in double bags f. o. b. here, £11 5s. per ton, less 2½%, is now quoted. Nitrate of soda is still quoted at £8 15s.@£9 per ton, less 2½% for double bags f. o. b. here for early delivery, but some concession would be made for later deliveries.

Valparaiso, Chile. Mar. 11.

(Special Report of Jackson Bros.)

Nitrate of Soda.—The activity shown during the last fortnight has completely disappeared and sales effected this fortnight have been very much reduced, which is due to the weaker feeling prevalent in the European market. Sales have been made at 4s. 7d. for 95%, April delivery, and 4s. 9½d. October and December delivery. For 96% there is absolutely no demand, although there was one sale at 4s. 11d alongside for April delivery. We quote 95%, March-April, 4s. 7d.; May, 4s. 7½d.; June-July, 4s. 8d.; August, 4s. 8½d.; September-December, 4s. 9d. all sellers and 96% 4s. 11d. for any delivery. The price of 4s. 7d. with 26s. 3d. freight stands in 6s. 5d. per cwt. net cost and freight without purchasing commission. Sales reported during the past fortnight aggregated 211,000 qtls.

IRON MARKET REVIEW.

NEW YORK April 21. 1899.

Pig Iron Production and Furnaces in Blast

Fuel used	Week ending Apr. 22, 1898 F'ces.	Tons	Week ending Apr. 21, 1899. F'ces	Tons	From Jan.,'98 Tons	From Jan.,'99. Tons
An' racite	27	21,512	34	30,150	301,701	425,205
Coke.....	151	239,944	154	211 900	3,400,497	3,291,718
Charcoal.	16	6,944	17	4.925	92,438	82,959
Totals..	194	268 460	205	246,975	3,803,636	3 799,882

The iron market has been comparatively quiet this week. This does not mean that there has been no business, but that there is an absence of the excitement and the rush to buy which were noted a few weeks ago. The waiting policy continues to be the line favored by many large buyers, and it is shown by the absence of any very large transactions in raw iron and steel. There is still some pressure for early deliveries from belated buyers and from a few whose business has exceeded the estimates made earlier in the year, but this class of trade is small.

In pig iron Bessemer requirements seem to be pretty well supplied for the present. There is more call for foundry iron, the demand for which seems to have overrun the expected requirements. Southern No. 2 foundry is especially scarce, and just now brings as much as No. 1. The stocks of both are light, and it is not easy to find lots which can be had at short notice.

The increase in pig iron production has already begun, and at present the blast furnaces are turning out iron at the rate of nearly 13,000,000 tons a year. In another month this will probably be increased still further. The gain will be chiefly in the East and in the Central West, since Alabama is not in a position to increase very much for several months to come. Some furnaces are going into blast, but they will be nearly balanced by others which will be forced to go out for repairs.

Steel billets are not to be had in any considerable quantity, but pressing requirements are not large just now. There has been some discussion over contracts for later delivery, but nothing has been settled definitely.

Finished material continues in demand, and there are many bridge and building contracts under negotiation. For some of these the result depends largely upon the prices which can be obtained. If these are too high the result may be postponement of the work. The high prices are operating to some extent to delay work in contemplation.

Export business is somewhat uncertain, so

far as future requirements are concerned. Low prices and quick deliveries have been the strongest elements in building up this trade, and neither are to be had just now. This does not, of course, affect business already contracted for, and there are plenty of contracts closed some time ago which are now being filled. Our prices now are generally on a parity with Europe, or slightly higher, and this will not encourage foreign buying. In the Southern ports freight room is becoming scarce as cotton shipments fall off, and there is still a good deal of iron to be shipped.

There is little to be reported about trusts and combinations. The hoop-iron combine and some other concerns have about completed their organizations.. In New York the trust securities have not yet recovered the set-back they received two weeks ago, and are much less in demand than recently, though there have been no more heavy falls in prices.

Birmingham, Ala. April 17.

(From Our Special Correspondent.)

The iron market is now rather quiet, purchasers holding off with the expectation that production will be so heavily increased in the near future that the prices will have to be lowered to keep stock from accumulating. At present the quotations remain stiff; No. 1 foundry is bringing $12, according to public figures, while No. 2 foundry is reported very scarce and bringing almost that amount also. The Warrant Company reports considerable activity in stock and many warrants are being presented.

A prominent railroad man when questioned as to the cessation of iron shipments stated that there had been a perceptible falling off in the export shipments of iron, but domestic shipments had made up almost for the difference. There are not so many cotton boats with space for iron sailing now, though there was a report to the effect that space for 3,000 tons had to be refused because of the want for immediate delivery orders. The furnacemen are not heard making much complaint.

During last week the Tennessee Coal, Iron and Railroad Company in this district blew in two furnaces, one at Ensley and one at Bessemer. One of the Ensley furnaces was blown out, leaving three still in operation at that place. The general output of the district, however, was increased about 6,000 tons a month. During the present month yet there are two other furnaces in this district expected to be started up and assist in the output being increased.

The following are the quotations given for the product publicly: No. 1 foundry, $12; No. 2 foundry, $11.75@$12; No. 3 foundry, $11.50; gray forge, $10; No. 1 soft, $12; No. 2 soft, $11.75.

There have been quite a number of interesting rumors in the district. The Mary Pratt Furnace property, consisting of an old, almost worn-out furnace and some good property, with good railroad facilities, just outside of the city limits, was sold to F. E. Nolting, representing some eastern parties, $50,000 being paid. It is stated that the old furnace will be rehabilitated and two others, with greatly increased outputs, will be erected on the property. Later on, it is further stated, the purchasers will build a by-product coke oven plant on the property and furnish gas for both fuel and illuminating purposes. A steel plant is also mentioned. The parties making the purchase are unknown, but part of the story is that the Empire Steel and Iron Company, of New York, is interested in the movement, while by others it is stated that the John Skelton Williams syndicate, which purchased the extensive properties at Gate City, near here, a couple of weeks ago and who state they will build furnaces and other iron plants, are interested in it and are desiring an entrance to the city for the Seaboard Air Line Railroad.

Representatives of the Republic Iron and Steel Company, the recently formed bar iron combine, which set out with a capitalization of $55,000,000, were in the district the last of the past week and were shown the properties of the Birmingham and Gate City rolling mills and of the Pioneer Mining and Manufacturing Company. It is stated here that Mr. John G. Caldwell, president of the Birmingham Rolling Mills Company will be the Southern representative of the Republic Company.

The work of repairing the furnace at Clarksville, Tenn., is being pushed to completion. The repair work necessary is being done mostly in Birmingham and during the week two carloads of machinery which was turned out at the Hood Machine and Foundry Company's works here will be sent to Clarksville. Other work for the furnace will be shipped right along and the plant will soon be in condition to commence the manufacture of iron.

Chicago. April 19

(From Our Special Correspondent.)

Pig Iron.—Pig iron sales have been running in small lots during the past couple of weeks, but few large orders having been booked, but the combined tonnage foots up a fair total. There appears to be much of an inquiry for iron to be delivered later on in the year, but as a rule furnaces do not care to book orders more than a few months ahead. Prices are being held to firmly, and there is no prospect of any early reduction. Quotations are as follows: Lake Superior charcoal, $17@$18; local coke foundry No. 1, $15.50@$15.75; No. 2, $15@$15.50; No. 3, $14.50@$14.75; local Scotch foundry No 1, $15.50@$15.75; No. 2, $15@$15.50; No. 3, $14.50@$14.75; Southern coke No. 1, $16@$16.25; No. 2, $15.25@$15.75; No. 3, $14.75@$15; Southern No. 1 soft, $15.50@$16; No. 2 soft, $15@$15.50; Southern silveries, $15.50@$16; Ohio strong softeners, $15.50@$16.50; malleable Bessemer, $15.50@$16; coke Bessemer, $15.50@$16.

Bar Iron.—Business continues to come in in fair quantity, though sales are as a rule smaller than for some time. The mills are loath to take orders for large business just now, awaiting the contemplated amalgamation of iron manufacturers. Prices remain firm and are 1.57c. for common iron; 1.55@1.65c. for soft steel bars.

Billets and Rods.—But few sales of billets or rods have been made, prices being $25.50@$26.50 for billets and $32.50 for rods.

Steel Rails.—The mills located here are booking but little business nowadays, some few small sales of light sections being the only business booked. Rails are quoted $25@$26.

Cleveland, O. April 17.

(From Our Special Correspondent.)

Iron Ore.—The iron ore market in this city continues very quiet, but no more so than was to be expected considering the largely sold up condition of the market. Very little of any kind or grade is offerable by the agents of the ore companies since the heavy sales of some weeks ago. As very little is also wanted by buyers since those early purchases, the present quiet condition of the market is expected to hold on, not only until navigation opens next month, but many weeks after the marine of the lakes is in motion. The Lake freight market also continues very quiet. Vessel owners are generally asking slightly higher freight rates than is satisfactory to shippers, and as they are fairly well supplied with tonnage for a considerable length of the season, they are waiting for easier views and prices before making further engagements of vessels either for the season or for single trips. The following are the quotations: Specular and magnetic ores, Bessemer quality, $3.75@$4; specular and magnetic ores, non-Bessemer, $3.25@$3.75; red hematite ores, Bessemer quality, $3.25@$3.75; red hematite ores, non-Bessemer quality, $2.50@$2.75.

Pig Iron.—The report of the pig iron market is not one of very great activity. A few fair sales of foundry are said to have been made, but very little has been done with other kinds or grades of iron. But notwithstanding ... derate transactions the pig iron market is very strong at the higher prices lately reported, and the tendency is towards still higher selling prices. The following are present quotations for iron, f. o. b. Cleveland: Lake Superior charcoal, $16.50@$17; Bessemer, $15.25; No. 1 foundry, $15; No. 2 foundry, $14.75; No. 1 Ohio Scotch, $15.65; No. 2 Ohio Scotch, $15.15; gray forge, $15.

Philadelphia, April 20.

(From Our Special Correspondent.)

Pig Iron.—There are rumors to-day of the probable early placing of large orders for both foundry and forge iron, and while it is impossible to either verify the rumor or get at the prices quoted or agreed upon for the alleged business, careful inquiry shows that consumers are quite willing to come into the market and contract at reasonable prices. A fair amount of business is being done, and an increase rather than a decrease is probable. Some iron has sold a little below current quotations, and none has sold above, because first-class brands are unavailable at any price. It is therefore correct to quote last week's figures for all kinds.

Billets.—Some business has been done since Monday at as high as $28, though the delivery had something to do with it. The mill people are not yet encouraging business and permit very little business to filter through their surroundings. All who know the situation here understand only a very heavy demand will develop.

Bar Iron.—There is no decrease in the consumption of bar iron among the small buyers. Car builders have extended certain contracts placed early in the spring. The mill managers here and at near-by points all speak in the same tone as to the pressure of orders, though the bulk of recent business has been made up of small lots. Common is 1.40c.; refined, 1.50@1.55c.; tested bars, 1.65c.; steel, 1.75c.

Sheet Iron.—The demand for the past few days has been for corrugated material for factory and mill work, and for heavy sheets. The consumption is heavy, and outside quotations are uniformly charged. The store stocks are kept low by reason of the constant and urgent retail demand.

Pipes and Tubes.—There is no change in this department, unless it is that buyers are desirous of securing fall deliveries. There is more confidence felt in the business since prices have remained stationary for two or three weeks, and more capacity is being put up.

Merchant Steel. It is the fault of merchant steel makers that business during the past week has not been larger. They discourage purchases by their quotations. Some of our buyers predict that there will be a reaction in quotations before long. Of this there is no certainty. The requirements of the Eastern territory for merchant steel are growing very fast.

Plates.—The plate mills have been obliged to make promises or give assurances to intending buyers, which amount to the placing of orders for large lots of plate, but very little of it is to be delivered before July. The prices cannot be had, but it is pretty well understood that all plate is now selling on a basis of 2.30c. for 14-in. material.

Structural Material.—There are several calls now before mill owners, and from the specifications in hand there is no doubt that the mills will be crowded harder than they have been. The managers have taken a great deal of work to be delivered in July, and will continue to do so as far as their quotations suit buyers. Concessions are now being asked for, but manufacturers see no occasion to depart from their fixed terms and prices.

Steel Rails.—The orders that have been sent to mills during the past week have been for small lots, and the earliest possible deliveries are July. Those managers who have some unsold capacity for June and July are very careful of it. Quotations are $27@$28.

Old Rails.—The pressure for old iron rails has enabled some brokers to sell at as high as $19, and it is intimated that there are buyers here who are willing to even pay more. Steel rails are quoted from $15 to $16.

Scrap.—There is a very strong pressure for scrap. All kinds are in request, but heavy steel scrap is sold far ahead. The supply is practically exhausted. As for other kinds, it is also true that there is very little probability of any getting on the market, the production of borings and turnings and of most all kinds being as good as sold.

Cartagena, Spain.

(Special Report of Barrington & Holt.)

Iron and Manganiferous Ores.—In March there were 42 shipments, of which 22 were dry ore, 17 manganiferous and 3 of magnetic iron ore. There have been many gales of wind during the month with heavy storms, which have prevented shipping somewhat and stopped work in the mines in the Sierra. However, freights having been easier, loading has been active. The Marquis of Villamejor, better known as Don Ignacio Figueroa, who was largely interested in the mining business in Spain, particularly as regards lead mining in the Linares District and in this Sierra, where he has important desilverizing works, died during the month at the age of 90 years. He was well known in Spain both for his wealth and astute business qualities.

We quote as follows per ton: Iron ore, ordinary 50%, Portman, 6s. f. o. b. Portman and 6s. 6d. Cartagena; special low phosphorus, 6s. 4d. f. o. b. Portman and 6s. 8d. Cartagena; extra quality low phosphorus, 7s. Cartagena; special iron ore, 7s. 6d., and specular iron ore, 9s. 6d. f. o. b. Cartagena. Manganiferous ore No. 1, containing 20% iron and 20% manganese, 14s. 9d. f. o. b. Cartagena; No. 1 B, 25% iron and 17% manganese, 11s. 9d.; No. 2, 30% iron and 15% manganese, 11s. 3d., and No. 3, containing 35% iron and 12% manganese, 9s. 7d. per ton f. o. b. Cartagena.

Pittsburg. April 19.

(From Our Special Correspondent.)

In many branches the iron and steel market has quieted down somewhat. There is a lull in the demand and most buyers have evidently made up their mind to either hold off as long as possible or at least purchase as sparingly as possible in preference to making large contracts for the second half of the year at present prices. Tonnage for the second half will undoubtedly show an increase in production, as several furnaces have started and are in full operation and many others are preparing to do so; the present high prices will, no doubt, cause consumers to move cautiously; it is not expected that purchases will be extended after the first of July. The price of Valley furnace and Pittsburg iron seems to have been fixed to that date; there is not the slightest sign of abatement in consumption, save only such foreign business as high prices may cut off. Stocks of pig iron are steadily diminishing both of Bessemer foundry and basic irons. The indications are that the second quarter and the beginning of the third are to show a tightness that may become a scarcity. Some of the furnaces that are to become active in the next three months are said to have sold considerable iron, and there is a steady small-lot trade from the foundries; but at the momer there is a pronounced wait on business looking to the remote future. For the benefit of the whole trade this might be prolonged for some weeks.

Muck bar was more inquired for with sales $19.50@$19.75.

Finished Material.—The demand for new business has not been very active; prices are firm and all the plants are kept busy on previous contracts; some of them are said to extend for the balance of the year.

Scrap Material.—The demand has been active for some time; prices are strong and well maintained; stocks in first hands are being steadily reduced.

Steel Wire Rods.—There seems to be no market at present, no sales being reported for some time.

Wire Nails.—The demand continues active; prices are fairly maintained, $2.05 for car lots and $2.15 for less; this is the season for activity and business has been liberal.

Wrought Iron and Steel Pipe.—The plants in this vicinity are all crowded with orders; most of them are running double turn, being something unusual; no combination yet.

Steel Rails.—The market remains firm with a good demand; plants in this vicinity have all the business they want for the balance of the year; prices unchanged, $25 for standard.

Latest.—Business continues to move along steadily, sales being restricted to limited amounts. Prices show no change; production is increasing all along the line. The decrease in stocks is still going on; the first of July will be beyond doubt show a material increase in production. There is no weakening in prices, which are firm with an excellent demand for the summer trade and the outlook all that could be desired.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.	Cash.
2,500 B., M., J., J., P..	$15.15
2,000 Mill Iron, S., P	14.35
1,000 Mill Iron S., P.....	14 50
1,000 M. I., S. Y., Y.	14.10
1,000 Mill Iron, M., J., P.	14.50
1,000 Mill Iron, A., P....	14.50
1,000 B., A., M., V	14.50
1,000 B., A., M., J., V...	14 50
1,000 Mill Iron, A., M., P.	14.50
1,000 B., A., M., V.....	14.50
500 Mill Iron, A., M., P.	14.70
500 No. 2 F'dry, A., P.	15.50
500 Bessemer, M., P..	15 15
500 B., A., M., P	15 15
500 Mill Iron, p., P.....	14.50
250 No. 2 F'dry, P.	17.50
250 Mill Iron, M., P.	14.55
250 No 2 F'dry, P	16.00
100 No. 1 F'dry, P	16 75
100 No. 3 F'dry, P.....	15.15
50 No. 1 F dry, P....	16.85

BLOOMS, BILLETS, SLABS.

800 Billets, M., J., P.	$25.75
600 Billets, M., P..	25.50
500 Billets, A., M., P..	25.50
250 Billets, M., P.....	25.75

MUCK BAR.

1,500 Neutral, P..	$25.75
1,000 Neutral, P.	25.75
500 Neutral, P.....	25.75

SKELP IRON.

	Cash.
600 Grooved, P...	$1.70 4 m.
500 Sheared, P..	1.90 4 m.

SKELP STEEL.

1,000 Sheared, P..	$1.85 4 m.
900 Grooved, P..	1.70 4 m.

FERRO-MANGANESE.

25 .80% delivered, P.. $75.00

CHARCOAL.

200 Warm B., No. 2, P. $18.25
50 Warm Blast, ex., P 26.75
50 Cold Blast, P..... 23.00
50 No. 2 Foundry, P. 18.25

OLD IRON AND STEEL RAILS.

2,000 Steel Rails, gr., P. $12.50
1,000 Iron Rails, gr., P.. 15.50
500 Steel Rails, gr., P. 12.75

SCRAP MATERIAL.

2,000 H. S., gr., P $12.00
1,000 H. M. S., gr., P .. 12.50
1,000 Wro't S., gr., P.. 16.00
500 No. 1, Wro't, n., P. 16.00
500 No. 1, Cast, gr., P. 13.00
500 Bush Scrap, n., P. 12.50
500 Wro't T., gr., P... 9.00
500 Cast Scrap, gr., P. 11.00
200 Cast B'gs., gr., P.. 7.50

New York. April 21.

The volume of business shows little change. There has been a considerable amount of structural material sold recently in spite of high prices.

In foreign trade we note shipments of $45,000 worth of agricultural machinery and $21,000 worth of steam pumps to France; $15,000 worth of machine shop tools to Russia; $40,000 worth of agricultural machinery and large orders for pumps and hardware for Soudan; shipments of over $40,000 worth of plows to Argentina and a shipment of bridge material valued at $20,000 to Costa Rica.

Pig Iron.—The market is rather featureless. The amount of iron changing hands is moderate and prices are generally unchanged, as follows: Northern brands, tide-water delivery, No. 1 X foundry, $16.25; No. 2 X foundry, $15.75; No. 2 plain, $15.50; gray forge, $15.25; Southern brands, New York delivery: No. 1 foundry, $16.25; No. 2 foundry, $15.75; No. 1 soft, $15.50; No. 2 soft, $15.25; No. 3, $14.75; basic, $15.

Cast Iron Pipe.—The pipe for the Brooklyn contract will be made by the Warren Foundry and Machine Company.

Bar Iron.—Local business is fair, with higher prices. Refined bars are 72c. and common 1.50c. for large lots on deck.

Plates.—There is no especial change in the market. We continue to quote for large lots at tide-water: Tank, ¼-in. and heavier, 2.30@2.55c.; shell, 2.40c.; flange, 2.50c.; marine, 2.75c.; fire-box, 2.80c. Universals are 2.20c.

Steel Rails.—Prices are unchanged at about $28 for standard sections f. o. b. mills. Small rails are quoted: 12-lb., $34; 16-lb., $32; 20-lb., $32; 30-lb., $30; 40-lb. to standard, $28, with the usual advance for small orders. Track fastenings are quoted: Angle bars, 1.20c.; spikes, 1.55c.; fish plates, 1.25c.

Nails.—There is a fair amount of business doing. Prices on wire nails in large lots on dock New York have advanced to $2.30; cut nails in carload lots on dock, $1.90.

METAL MARKET.

NEW YORK, April 21, 1899.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports, March and year.

	March.		Year.	
	1898.	1899.	1898.	1899.
GOLD.				
Exports	$728,707	$1,109,815	$1,447,782	$3,765,188
Imports	30,708,320	3,187,575	43,364,415	14 402,561
Excess	I. $29,979,613	I. $2,077,730	I. $38,946,633	I. $10.637,373
SILVER.				
Exports	4,095,963	5,286,607	12,157,754	15,207,703
Imports	2,57-,595	3,125,859	7,198,691	7,144,604
Excess	E. $1,518,368	E $2,160 748	E. $4,959,063	E. $8 063,099

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending April 20th, 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports	Total Excess, Exp. or Imp.
We'k		$594,891	$281,769	$100,658	I. $410,792
1899..	$15,72 767	5,27,.406	816 923	957,475	E. 4,154,869
1898..	4,416,331	50,658,402	11,377,5-4	1,474,088	I. 35,738,622
1897..	1,064,841	1,138,637	12 719,688	640,688	E. 2,005,189
1896	13,889 633	16,770,430	12,485,094	6 9,816	E. 8,994,481

No exports of gold are reported; imports were chiefly from the West Indies. Exports of silver went chiefly to London; imports were from Mexico and South America.

The United States Assay Office in New York reports the total receipts of silver at 157,000 oz. for the week.

Average Prices of Silver per oz. Troy.

Month.	1899. Lond'n Pence.	1899. N. Y. Cents.	1898. Lond'n Pence.	1898. N. Y. Cents.	1897. Lond'n Pence.	1897. N. Y. Cents.
January...	27.42	59.36	23.29	56.77	29 74	64.79
February..	27.44	59.42	25.89	56.07	29 68	64.67
March.....	27.48	59.64	25.47	54.90	28.96	63 06
April.....	.....	.....	25 95	56.02	28 36	61.85
May.....	.....	.....	24.31	56.98	27,85	60.42
June.....	.....	.....	27.09	58.61	27.58	60.10
July.....	.....	.....	27.32	59.06	27.36	59.61
August....	.....	.....	27.48	59.54	24.93	54.19
September	.....	.....	28.05	60.68	25 66	55 24
October ..	.....	.....	27.90	60.42	26 77	57.57
Novem.	.....	.....	27.93	60 60	26 87	57.93
December.	.....	.....	27.45	59.42	26.83	58.01
Year.....	.....	.....	26.76	58 26	27.55	59.79

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Average Prices of Metals per lb., New York

Month.	COPPER. 1899.	COPPER. 1898.	TIN. 1899.	TIN. 1898	LEAD. 1899.	LEAD. 1898.	SPELTER. 1899.	SPELTER. 1898.
Jan	14 75	10.99	22.48	13.87	4.18	3 65	5.34	3.96
Feb.....	18 00	11.28	24 20	14 08	4.49	3 71	6.28	4.04
March..	17.54	11.94	23.82	14 38	4.37	3 72	6.31	4 25
April....	.....	12.11	.....	14.60	....	3 63	.....	4.26
May	.....	12 09	.....	14.52	.....	3 64	.....	4.27
June.....	.....	11 89	.....	15 22	.....	3.82	.....	4 77
July.....	.....	11 63	.....	15 60	.....	3.95	.....	4.66
August..	.....	11 89	.....	16.23	.....	4.00	.....	4 58
Sept.....	.....	12.31	.....	16 03	.....	3 99	.....	4.67
October..	.....	12 41	.....	17 42	.....	3 78	.....	4 98
Nov.....	.....	12 96	.....	18.20	.....	3.70	.....	5.29
Dec.....	.....	12.93	.....	18.30	.....	3 76	.....	5.10
Year	.....	12 03	.....	15 70	.....	3.78	.....	4.57

The price given in the table is for Lake Copper. The average price of electrolytic copper in January was 14.26c.; in February it was 17.02c.; in March, 16.35c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars.....	$ .47¼	$ .48¾
Peruvian soles and Chilean pesos.....	42½	43
Victoria sovereigns.....	4.85	4.87
Twenty francs	3.85	3.88
Twenty marks	4.74	4.78
Spanish 25 pesetas	4.73	4.84

Financial Notes of the Week.

General business continues very good, though the stock markets have not been especially active, and are inclined to be weaker. This has not affected the condition of trade, however. Two constructions are planned and are being carried out on a very large scale everywhere; the demand for labor is great, and wages are better in most lines, which is an important element.

Money is in less abundant supply, as the heavy withdrawals of capital for investment in new industrial stocks begins to be felt. Few of the new combines have begun to make large expenditures yet and the result is a temporary locking up of a large amount. Promotion is becoming more difficult, and bankers of standing are less ready than they were to undertake the financing of new companies.

Imports and Exports of Metals

Port.	Week, Apr. 19. Expts.	Week, Apr. 19. Impts.	Year, 1899. Expts.	Year, 1899. Impts.
*New York.				
Aluminum .....long tons	.....	.....	193	10
Antimony ore .. " "	.....	.....	.....	523
" regulus.. " "	.....	151	.....	302
" oxide ... " "	.....	.....	.....	11
Chrome ore..... " "	.....	.....	.....	610
Copper, fine ..... " "	494	714	15,433	4,171
" wire.... " "	66	.....	501	.....
" matte, ore " "	.....	.....	486	433
" ash..... " "	.....	113	....	64
" sulphate " "	200	.....	8,783	.....
" other ... " "	.....	.....	.....	30
Ferro-chrome.. " "	.....	.....	.....	.....
Ferro-mangan'se " "	.....	.....	.....	51
Ferro-silicon..... " "	.....	.....	.....	.....
Iron ore .... " "	.....	.....	5	.....
" pig, bar, rod " "	63	.....	1,833	585
" pipe..... " "	393	.....	10,475	.....
" plates, sheets " "	.....	.....	179	.....
" other..... " "	174	.....	538	.....
Lead ..... " "	1,365	625	19.383	14,565
" ore ..... " "	.....	.....	.....	..
Manganese, ore. " "	.....	‡100	.....	842
§Metals, old scrap " "	83	‡24	2,073	711
Composition... " "	.....	.....	1,890	.....
Nails. ..... " "	94	.....	5,359	.....
Nickel .. " "	50	.....	647	5
§Railr'd material " "	1,160	‡160	4,942	1,120
Rails, old..... " "	405	.....	6,056	.....
Spiegeleisen..... " "	.....	134	.....	212
Steel bars, plates " "	.....	‡109	15,780	4,440
" rails. ..... " "	940	.....	20,354	.....
" hoops... ... " "	.....	.....	446	.....
" wire . " "	606	.....	9,8-3	25
" not speci'd. " "	6 3	.....	4,283	739
Tin ..... " "	.....	2,450	.....	10,2?0
" dross or ashes " "	.....	53	.....	.....
" and black plates, boxes	.....	20,738	.....	16?,96
Zinc .....long tons	.....	.....	209	6
" dross ..... " "	17	.....	3-0	.....
" ashes, skim " "	10	.....	941	25
" ore..... " "	.....	.....	3,022	.....
" oxide..... " "	137	‡19	1,5?6	173
†Baltimore.				
Aluminum .... bags	.....	.....	.....	2,979
Antimony regulus.. casks	.....	.....	.....	42
Chrome ore .....long tons	.....	.....	.....	.....
Copper, fine ..... "	.....	.....	11,810	.....
" matte .. " "	.....	.....	.....	.....
" sulphate " "	.....	.....	1,156	.....
" pipe..... " "	.....	.....	100	.....
Ferro-manganese " "	.....	.....	.....	1,022
Ferro-silicon..... " "	.....	.....	.....	130
Iron pig, bar, etc. " "	.....	.....	.....	2,976
" ore..... " "	.....	.....	.....	6,546
" pipe..... " "	136	.....	491	.....
" pyrites..... " "	.....	.....	.....	12,683
" other ..... " "	.....	.....	626	15
Lead ..... " "	.....	.....	.....	.....
Machinery..... " "	.....	.....	115	.....
Manganese ore.. " "	.....	.....	.....	16,424
Metals, scrap.... " "	.....	.....	2,6?1	7
Nails ..... " "	33	.....	193	.....
Spiegeleisen..... " "	.....	.....	.....	509
Steel, bars, pl'es.. " "	.....	.....	15,015	55
" wire ..... " "	25	.....	308	143
" rails..... " "	.....	.....	14,248	.....
" pipe..... " "	.....	.....	5?2	.....
not specified.. " "	828	.....	1,576	.....
Tin ..... " "	.....	.....	.....	512
" dross ..... " "	.....	.....	.....	.....
" and black plates, boxes	.....	.....	.....	3,795
Zinc.....long tons	.....	.....	13	.....
" dross..... " "	.....	.....	103	.....
" skimmings.. " "	.....	.....	102	.....
†Philadelphia.				
Antimony.. .....casks	.....	.....	.....	.....
Chrome ore.....long tons	.....	.....	.....	326
Copper ore..... " "	.....	2,600	.....	17,239
Ferro-manganese " "	.....	.....	.....	566
Iron, pig..... " "	.....	.....	.....	.....
" ore..... " "	.....	.....	.....	28,850
" pyrites ..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	20,803
Spiegeleisen..... " "	.....	3,620	.....	786
Steel " "	.....	.....	.....	.....
Tin ..... " "	.....	.....	.....	.....
" and black plates, boxes	.....	25	.....	495
Zinc ore.....long tons	.....	.....	.....	1,398
†Galveston.				
Lead ..... long tons	.....	.....	6?2	.....
Zinc..... " "	.....	.....	1,170	.....
†Boston.				
Tin.....long tons	.....	125	.....	375
*Newport News.				
Copper.....long tons	.....	.....	383	.....
*Norfolk, Va.				
Copper, fine..... long tons	.....	.....	1,182	.....
Iron, pig ..... " "	.....	.....	10 902	.....
" pipe..... " "	.....	.....	410	.....
Steel, bars, billets " "	.....	.....	3 886	.....
" not specified " "	.....	.....	477	.....
*New Orleans, La.				
Copper, fine .. long tons	.....	.....	1,137	.....
" matte... " "	.....	.....	1,271	.....
Zinc ..... " "	.....	.....	1,695	.....
" ore..... " "	.....	.....	345	.....
*San Francisco, Cal.				
Tin ..... long tons	.....	.....	.....	199

*New York Metal Exchange returns. †By our Special Correspondent. §Not mentioned elsewhere. ‡Weekending April 14th.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2¾c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. in pigs and bars; 2c. on sheets, etc. Copper, tin and platinum are free of duty.

The exports of merchandise from the United States as reported by the Bureau of Statistics of the Treasury Department, amounted to $104,463,969. This is an increase of $10,604,648 over February, but was less by $8,156,527 than March, 1898. The exports still continue heavy, however, in comparison with previous years. For the nine months of the fiscal year from July 1st to March 31st the statement is as follows:

	1898.	1899.
Exports	$925,905,356	$9,47,919,405
Imports	455,253,362	499,995,023
Excess, exports	$470,651,994	$447,924,372
Add excess of exports, silver		20,265,515
Total		$468,189,887
Deduct excess of imports, gold		66,893,761
Apparent balance		$401,296,126

The gold and silver movement in detail will be found in the usual place, at the head of this column.

The statement of the United States Treasury on Thursday, April 19, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	April 12.	April 19.	Changes.
Gold	$245,263,460	$242,115,224	D. $3,148,236
Silver	4,018,623	4,224,262	I. 205,639
Legal tenders	14,205,495	13,906,671	D. 298,824
Treas. notes, etc.	849,761	854,170	I. 4,409
Totals	$264,337,339	$261,100,327	D. $3,237,012

Treasury deposits with national banks amounted to $88,220,580, a decrease of $1,207,320 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending April 15th, gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$503,988,200	$580,085,400	$768,854,200
Deposits	568,859,200	663,519,300	888,478,300
Circulation	15,454,800	13,939,100	15,948,300
Reserve:			
Specie	86,624,300	147,531,400	188,134,900
Legal tenders	102,557,400	55,694,500	53,456,200
Total reserve	$189,181,700	$203,225,900	$241,591,100
Legal requirements	142,214,800	165,879,825	222,119,575
Balance, surplus	$46,966,900	$37,346,075	$19,471,525

Changes for the week this year were increases of $19,400 in circulation, $982,400 in specie, $1,848,700 in legal tenders and $4,452,700 in surplus reserve; decreases of $10,355,200 in loans and discounts and $6,486,400 in deposits.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	1898.		1899.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'n.	$147,531,400	.....	$188,134,900	.....
England	147,182,340	.....	151,752,000	.....
France	370,890,725	$243,088,590	362,908,430	$240,425,135
Germany	144,635,000	74,510,000	137,170,000	70,665,000
Aus.-Hun.	183,465,000	62,630,000	179,560,000	62,730,000
Spain	48,220,000	52,365,000	58,250,000	59,410,000
Belgium	13,780,000	6,880,000	15,430,000	7,715,000
Netherlands	14,035,000	34,230,000	19,940,000	34,205,000
Italy	77,985,000	9,185,000	77,085,000	9,600,000
Russia	571,905,000	21,590,000	487,025,000	23,335,000

The returns for the Associated Banks of New York are of date April 15th, and the others are of date April 13th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the week ending April 6th, 1899, are reported by Messrs. Pixley & Abell's circular as follows:

	1898.	1899.	Changes.
India	£1,923,050	£1,211,500	D. £711,550
China	234,396	348,230	I. 113,834
The Straits	94,784	24,907	D. 69,877
Totals	£2,252,230	£1,584,637	D. £667,593

Arrivals for the week this year were £165,000 in bar silver from New York, £22,000 from the West Indies and £16,000 from Chile; total, £203,000. Shipments were £77,500 in bar silver to Bombay, £59,000 to Shanghai and £20,000 to Calcutta; total, £156,500.

Indian exchange remains firm, and the 60 lakhs of Council bills offered in London were taken at an average of 16d. per rupee.

The Indian fiscal year ended March 31st, and the total amount of bills sold during the year was 281,053,071 rupees, realizing £18,712,454, an average rate of 15.98d. per rupee.

Notwithstanding French tenders for nearly 1,000,000 oz. this week the silver market has shown a tendency to sag, closing dull at 27⅜d. in London. The Indian banks have not been active bidders and the supply was sufficient to satisfy Continental orders without putting up prices.

Other Metals.

Daily Prices of Metals in New York.

April	Sterling Exchange	Silver. Fine oz. Cts.	Silver. London. P'nce	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic, ₩ lb.	Copper. Lond'n standard £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter, cts. ₩ lb.
15	4.86½	59⅝	27 7/16	18	17	.	24⅞	4 32½	6 60
17	4.86½	59⅝	27 7/16	@18½	17½	73 10 0	25	4.32½	6.65
18	4.86½	59½	27⅜	18	17¼	75 0 0	25½	4.32½	6.65
19	4.86¾	59½	27⅜	@18¾	17¼	75 15 0	25¼	4.32½	6.70
20	4.86½	59½	27⅜	18	17⅜	76 15 0	25½	4.32½	6.70
21	4.86½	59⅝	27 7/16	@18½	17⅜	77 0 0	25	4.32½	70

Copper.—The market has been extremely active, a large business having been done both in lake and electrolytic copper at a rise in values; and still more could probably have been done had not the lack of supplies stood in the way. While early in the week transactions in lake took place at 18c., for May, June and July 18½c. has since been paid, and it is doubtful whether additional quantities are obtainable at the latter figure. It is reported, though not authentically, that the Calumet & Hecla has sold practically its entire product for several months to come; that it has withdrawn from the market and has refused to entertain business for fall delivery. The demand has not been confined to inquiries for domestic consumption, but it has also been very urgent on the part of Europe, which, as was anticipated by us, would have to enter the market very soon for fresh supplies. We are now advised that they have commenced making purchases, after having found that the quantities available for export were not as plentiful as they had expected and that they could no longer rely on being able to buy copper here at concessions, or rather at lower prices than those at which the metal is sold to domestic manufacturers. We quote prices as follows: For lake copper, 18@18½c.; for electrolytic in cakes, bars or ingots, 17@17½c.; for cathodes, 16¾@17⅛c., and casting copper the same price.

The foreign market has advanced by leaps and bounds and closes at £77 por spot and £76 15s. for three months prompt, which is the highest price witnessed for more than 10 years. The market, which closed last week at £72 10s., opened on Monday at £73 10s.; on Tuesday at £75; declined in the afternoon of that day 5s., but advanced on Wednesday to £75 15s.; on Thursday to £76 17s. 6d., and closes to-day as above. We call special attention to the fact that the heavy discount of 15s., at which copper for three months delivery was selling in London last week as compared with spot, is now only 5s. For refined and manufactured sorts we quote: English tough, £79 10s.@£80; best selected, £80 10s.@£81; strong sheets, £85; India sheets, £83; yellow metal, 7 3-16d.

The statistics for the first half of the month show a decrease in the visible supplies of 1,800 tons.

Copper production, as reported by Mr. John Stanton, who acts as statistician for the producing companies, was as follows, for March and the three months ending March 31st, stated in long tons (2,240 lbs.) of fine copper:

	March. 1898.	March. 1899.	3 months. 1898.	3 months. 1899.
U. S., Reporting mines	19,131	19,918	51,747	54,591
U. S., outside sources	1,250	2,000	3,700	5,850
Total, U. S.	20,381	21,918	55,447	60,441
Foreign, reporting mines	7,121	8,977	19,980	21,328
Totals	27,502	29,995	75,427	81,769
Exports, U. S.	13,714	14,414	34,355	32,409

The increase in United States production for the three months was 4,994 tons, or 9.1%. At the same time there was a decrease of 1,946 tons, or 5.7% in exports. There was an increase of 1,348 tons, or 6.7%, in the foreign production.

Tin has improved somewhat, but on the whole fluctuations have been within exceptionally narrow limits. We quote the market about 25@25¼c.

The London market on Monday opened at an advance of 15s. and has since then improved still further, going as high as £114 12s. 6d. for spot and £115 5s. for three months prompt, closing to-day at £113 12s. 6d. for spot and £114 2s. 6d. for three months prompt.

Lead.—The market is very dull at about 4.32½@4.35c.

The foreign market is somewhat easier, the quotation for Spanish having been reduced to £14 7s. 6d. and for English to £14 10s.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and slowly advancing on account of light offerings. The latest sales are on a basis of 4.25c. for both common and refined metal.

Spanish Lead Market.—We are informed by Barrington & Holt, of Cartagena, Spain, that the average price of lead in March was 73.15 reales per qtl., equivalent to a price of £12 15s. 4d. per long ton f. o. b. Cartagena, on an average exchange of 32.08 pesetas to £1, silver having averaged 13.95 reales per oz. The weekly prices of lead were as follows: March 1st, 73.75 reales per qtl., or £12 14s. 5d. per long ton; 8th, 72.25 reales, or £12 11s. 6d.; 15th, 72.75 reales, or £12 13s. 7d.; 22d, 73.50 reales, or £12 17s. 3d.; 29th, 73.50 reales per qtl., or £12 19s. 11d. per long ton of 2,240 lbs. The weekly prices of silver per oz. were: March 1st, 14 reales(exchange value, 32.45 pesetas); 8th, 14 reales (exchange, 32.16 pesetas); 15th, 14 reales (exchange, 32.12 pesetas); 22d, 14 reales (exchange, 32 pesetas); 29th, 13.75 reales (exchange value, 31.66 pesetas). The exports of pig lead in March were 2,379,281 kilos to Marseilles, 1,722,073 kilos to London, and 409,107 kilos to Newcastle. Other exports included 7,300,000 kilos zinc blende, 100,000 kilos calamine and 30,200 kilos galena to Antwerp.

Spelter has advanced quite sharply to 6.65@6.70c. at New York and 6.35@6.40c. St. Louis. The demand, which had already been exceptionally large during the last few months, has become still more pronounced, with the result that the metal has grown extremely scarce, notwithstanding the fact that very little of it is now being exported. If the demand from abroad should revive, which is not unlikely, we are liable to experience a further rise.

The foreign market is steady at £27 15s.@£28 for ordinary brands and £28@£28 5s. for special brands.

Antimony is without any change. We quote 10@10½c. for Cookson's; 9¾@10c. for Hallett's, C., U. S. Star and Hungarian.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots, 33@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size and order.

Platinum.—Demand is active and prices continue high. For large lots $15.50 per ounce is now quoted in New York; for smaller orders, $16@$17. The London quotation is 62@64s. an ounce.

Quicksilver.—The New York quotation remains $42 per flask. The London price has been reduced to £7 17s. 6d., with the same figure named from second hands.

The Minor Metals.—Quotations are given below for New York delivery:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	.35@37c.	Bismuth	$1.40
No. 2, 90% ingots	.31@34c.	Magnesium	$2.75@$3
Rolled sheets	.38c. up	Phosphorus	.48@50c.
Alum.-bronze	.20@23c.	Tungsten	70c.
Nickel-alum.	.33@39c.	Ferro-tungsten, 60%	60c.

Variations in price depend chiefly on the size of the order.

LATE NEWS.

The Boston & Montana Company has declared a dividend of $4 a share quarterly and $2 extra, making $6 per share in all, payable May 20th to stockholders of record on May 5th. The total amount to be paid is $900,000; total paid in dividends to date, $10,775,000.

In the "Engineering and Mining Journal," April 8th, we mentioned that Lewisohn Brothers, of New York, had acquired the property of the Pittsburg & Tennessee Copper Company and also the London and Burra-Burra mines, in the Ducktown District, in Polk County, Tenn. Lewisohn Brothers now own all the property in the district except that of the Ducktown Sulphur, Copper and Iron Mining Company. Before making these purchases they did a great deal of prospecting work, putting down many drill holes and cutting the vein. It is proposed to carry on operations on an extensive scale, and the first work done will be the enlarging of the shaft at the Polk County Mine. Three shafts, each of three compartments, will be sunk altogether, one at the Polk County Mine, one at the London and one at the Burra-Burra. It is expected that with these at least 1,000 tons of ore a day can be mined. The ore is a pyrrhotite and the average from the various drill holes will be not far from 3% copper. The ore will be heap-roasted and a smelting plant will be put in to smelt the cinder into a 30% matte, which will be converted in trough converters and made into pig copper. The grade may appear somewhat low for a sulphide, but on the other hand, the climate is good, there are railroad facilities and coke can be delivered at a low price, so that an estimate shows that copper can be produced at a cost which will enable the owners to put it down in New York at a total expense, including freight, of 8c. per lb. of fine copper. It is estimated that from 12,000,000 to 15,000,000 lbs. of copper can be produced yearly.

To operate these properties a new company has been organized which will have a capital stock of $5,000,000 in 200,000 shares of $25 par value, all being taken privately, so that no stock will be offered for sale. The company will start out with $1,000,000 cash and 25,000 shares of stock in the treasury to provide for all new work on the property and for working capital. The company will be called the Tennessee Copper Company; among the directors will be Adolph Lewisohn, H. H. Rogers and A. C. Burrage.

MINING STOCKS.

Complete quotations will be found on pages 459, 460 and 461 of mining stocks listed and dealt in at:

Baltimore.	New York.	Mexico.
Boston.	Philadelphia.	Paris.
Butte.	St. Louis.	Rossland.
Cleveland.	Salt Lake.	Shanghai.
Colo. Springs.	San Francisco.	Toronto.
Denver.	London.	Valparaiso
Spokane.		

New York. April 21.

The week has been a quiet one for gold and silver stocks, but for copper shares interest continues to grow. New companies are being rapidly formed to work copper properties, and we understand one of these will prospect in Cuba.

The securities of the American Smelting Company (silver-lead combination) were listed on the New York Stock Exchange on April 20th and sales on the same day were 17,550 shares common at $55⅛@$59, and 4,542 shares preferred at $92@$94.

Anaconda, of Montana, has been influenced by the rumors originating in London that new gold discoveries had been made in the mine. Consequently, the stock went up to $49¼ from $43 on one day last week. Alice Gold has been quoted down to 80c., with no sales reported.

Homestake, of South Dakota, is firmly held at $55. Another double dividend, amounting to 50c. per share, has been declared, payable on April 25th. The gross output of the property in March amounted to $230,930, showing an increase of $39,521 over February and $47,621 more than January.

The Comstocks have weakened, owing to the fact that new assessments have been levied. Consolidated California & Virginia's sold at $1.60@$1.75. Hale & Norcross was quoted at 25c. The Hale & Norcross Mining Company has just levied an assessment of 10c. per share, delinquent May 15th. This is the second assessment this year. Sierra Nevada slumped to 90c. from $1.15 last week. Belcher, Gould & Curry and Yellow Jacket are all quoted around 33c.

In the California section, Standard Consolidated brought $2.50, Quicksilver common sold at $3.50, while the preferred stock was in request at $8.50, though holders ask around $11 for it. Brunswick Consolidated has recovered, and the latest quotation is 28c. per share.

The Colorados have been fairly active, and buying has been done chiefly in the moderate-priced stocks. Portland holds around $1.80; Isabella at 87@90c.; Anaconda Gold at 50c.; Elkton at 91@92c., and Gold Coin at $1.95@$2.

The Industrial Exchange, after due consideration, has decided to suspend from its listed stocks the "treasury shares" of the Burt Gold Mining Company, Gilpin & Lincoln Mining Company, Gregory Gold Mining Company, High Five Gold Mining Company, Jennie Blanche Mining Company and Good Samaritan Mining Company, all of Colorado, all of which are handled by the Prentice Investment Company. An investigation is in progress to substantiate or refute the rumors which have lately been circulated by holders of the common shares of these stocks. Mr. H. L. Prentice informs us that the money received in the sale of the treasury stock will be devoted to further developing the properties.

Auction sales included $34,000 Virginia, Tennessee & Carolina Steel and Iron Company 6% bonds at $50 the lot, and $12,000 8% bonds at $100 the lot.

Boston. April 20.

(From Our Special Correspondent.)

Dearer money and the discrimination which the banks are exercising about collaterals have shown their effect in a narrower market this week. The public has let go a little and the trading was much more of a professional nature than we have seen for some time. The holiday on Wednesday brought a break also, and business was dull on the whole—that is, dull compared with recent weeks.

There is an effort to revive the market by talking up the great Lawson copper combine, but the talk does not hold together very well. Thus we are told that none but "assured dividend payers" are to be taken in; but we are told also that Butte & Boston is to be taken in at not less than $120 and Arcadian at $100. Now, these two companies may be "assured dividend payers," but nobody has seen anything of the dividends, and a good many people think Butte is sure of nothing but assessments. How much attention is paid to the talk is shown by the fact that it is impossible to get Butte & Boston above $90 or to where it has been pegged for some time; and Arcadian is still a long way below $100.

The fact is that the market needed a rest badly, and it is well that a dull week should come in. Moreover, a good many people who buy to hold are loaded with stocks that will not pay for a long time, if ever. These and a good many others are out of the market for the time.

The stocks of the Mass Consolidated Mining Company ($2,500,000) and the Bingham Copper and Gold Mining Company ($2,000,000) have been listed on the exchange.

At a special meeting, held this week, of the stockholders of the Isle Royale Consolidated Mining Company, of Michigan, 99,085 shares were represented; 533 by proxy and 98,552 in person. The meeting was a formal affair, but three stockholders aside from the officials of the company being present. The stockholders authorized the directors to sell the company's real estate in Michigan, its property and assets of every nature, to the Isle Royale Copper Company, of New Jersey, for $6,800,000.

The 50,000 shares of the capital stock of the Elm River Copper Mining Company have been allotted, the bulk of the stock going to New York subscribers. The total capitalization is 100,000 shares of a par value of $12, at which one-half was offered for subscription. The property is located north of the Winona. The company has been organized under New Jersey laws, and the capital is fully paid. H. F. Fay will probably be president of the company. The directorate has not been slated. Chase & Barstow act as the financial agents, and subscriptions are payable at their office on April 20th.

The American Zinc, Lead and Smelting Company was subscribed privately a few weeks ago by the United States Oil Company people at $20 per share for 20,000 shares, par value $25. All the money went into the purchase of lands and plants. The management is in the hands of W. C. Renfro, formerly Governor of Oklahoma. This company has secured about 1,600 acres of mineral land. Application will be made for the listing of the shares on the Boston Stock Exchange. A circular is issued by President Clark calling a meeting of stockholders at Portland, Me., April 22d, to increase the capital stock from 20,000 shares to 100,000 shares, of which 40,000 shares will be retained in the treasury, to be issued from time to time at not less than par. The 40,000 shares will be offered to stockholders of record April 21st in proportion of two shares new stock for each share of old.

San Francisco, April 15.

(From Our Special Correspondent.)

Although the pumping news from the operations on the Comstock continues good, it has had little or no effect in arousing interest in the stocks. Outsiders are not sending in buying orders, and business is on the usual moderate scale.

Even the trading among insiders was not heavy, and though the week opened with some signs of activity, prices fell off, and the close is dull, with a general downward tendency.

Some quotations noted are: Consolidated California & Virginia, $1.85@$1.90; Ophir, $1.15@$1.20; Sierra Nevada, $1.08@$1.10; Mexican, 63c.; Best & Belcher, 63c.; Gould & Curry, 43c; Chollar, 37c.; Potosi, 30@31c.

The sworn statements filed in the offices of the mining companies show cash on hand April 1st as follows, with all expenses paid unless otherwise stated: Alta, $388, with $1,000 due the bank and the balance of an assessment to be collected; Alpha Consolidated, $2,043; Belcher, $8,561; Best & Belcher, an indebtedness of $103, after paying the last month's expenses and an assessment being collected; Bullion, $624, with an assessment being collected; Caledonia, $4,466, with last month's expenses unpaid; Confidence, $958, with last month's expenses unpaid and an assessment being collected; Chollar, $6,842; Consolidated California & Virginia, $4,983; Consolidated New York, $554; Crown Point, $897; Exchequer, $1,143; Gould & Curry, $4,580; Hale & Norcross, $787, with bills payable of $2,500; Julia Consolidated, $1,416; Justice, $1,432; Mexican, $1,889; Ophir, $6,660; Overman, $3,775, with mine expenses for the past three months unpaid and an assessment being collected; Potosi, $2,915, with bills payable of $4,000; Savage, $6,559; Segregated Belcher, $694; Scorpion, $270; Sierra Nevada, $14,830; Silver Hill, $169, with bills payable of $700; Standard Consolidated, $39,613, with last month's expenses at mine unpaid and the bullion clean-up to be received; Syndicate, $1,512; Union Consolidated, $9,272; Utah Consolidated, $241.

London. April 8.

(From Our Special Correspondent.)

An interesting flotation in connection with American mining has been the issue of the Mexican Esperanza Gold Mine, Limited. This company has been formed with a capital of £850,000 to acquire the gold mines known as the Esperanza y Anexas Mine, situated near the celebrated El Oro Mine in the State of Mexico, 6 miles from Tultenango, on the Mexican National Railway. The mines have been opened up and worked by a local company, which commenced milling in 1896. The number of stamps is now 40, and there is also a cyanide plant. It is intended to increase the capacity to 5,000 tons per month. The average production is expected to be $17 (U. S.) of gold and 5 oz. of silver to the ton, and the average profit is estimated at $10 (U. S.) per ton. There is about 200,000 tons of ore in sight. The reports on the property are by Messrs. A. Wartenweiler, R. J. Frecheville, T. W. Jenkins, F. W. Bradley and Ross E. Browne, while the consulting engineer to the company is John Hays Hammond. With this galaxy of talent the mine should be a success. The company is promoted by the Consolidated Mines Selection Company, Limited, an English company of considerable strength and influence, its backing being Fraser & Chalmers' friends, and several German and South African houses. The purchase price is £803,000, payable as to £653,000 in cash and £150,000 in shares, while £47,000 will be available as working capital. I understand that £500,000 of shares have already been subscribed, so that the public are only offered £200,000 for subscription.

The copper boom of course continues to interest promoters, but the scarcity of working propositions is irritating to them. I have had, myself, many applications from such people, wanting to know if I can recommend properties. It does not matter what sort of properties as long as they will provide a sample assay. But no new companies to work copper properties have made their appearance during the last few weeks. In the meantime some of the leading copper companies have declared their dividends for 1898. The Rio Tinto, of course, comes at the head with a dividend of 47½% on its ordinary shares for the year, as compared with 40% in 1897. The Tharsis Company is paying a dividend of 27½%, as compared with 25% in 1897 and 17½% in 1896. The Mason & Barry Company has declared a dividend of 12½%, as compared with 10% last year. The accounts in all three cases were made up before the period when the sensational rise in copper took place.

In spite of dullness generally on the Stock Exchange, some little life is found in the West Australian market. For some time Lake View Consols, Golden Horseshoe, and other Kalgurlie properties have been actively pushed in London, and their shares have been raised to high figures. The total output of the West Australian mines owned by London companies was 709,656 oz. crude during 1898, as compared with 527,374 oz. crude during the previous year. There are 177 such companies and their total dividends in 1898 was £770,829, as compared with £475,150 in 1897. The largest dividends were paid by Great Boulder, £200,000; Lake View Consols, £187,500; Associated Gold Mines (Australia leases), £89,815; Golden Horseshoe, £75,000; Ivanhoe, £50,000; Lady Shenton, £32,000, and Hannan's Brownhill, £31,000. Shares in all these companies are worked actively, but we hear less of ventures that have not arrived at so advanced a stage of development.

Paris. April 9.

(From Our Special Correspondent.)

There has been a much better feeling in the stock market, and more attention is paid to mining stocks. The metallurgical shares are again in favor, and are recovering some of the recent reaction in values.

We are seeing some revival in Transvaal gold stocks, but any approach to excitement in these has been checked by the somewhat uncertain condition of South African politics. An attempt to place here some mines in Rhodesia has been a failure.

With all its fluctuations, copper continues at a high price and the shares of the copper companies are equally in demand. Rio Tinto has made up its accounts and pays 47½% on the common stock. Others are making quite as good a showing.

The great coal mining companies are beginning to make public their reports for 1898, and the results shown are generally very favorable. Nearly all of them have increased their dividends, and several are preparing to increase their production by opening new shafts or adding more territory to their workings.

In my last letter I gave you the total production of coal in France last year. In the table below are given the details of this production, in metric tons:

Nord and Pas-de-Calais	18,330,079	19,398,230
St. Etienne	3,707,477	3,754,908
Gard	1,855,078	1,938,106
Creusot and Blanzy	1,781,527	1,914,432
Aubin	1,006,031	1,068,532
Other basins	3,657,015	3,833,433
Total coal	30,337,207	31,907,641
Lignite	460,422	532,095
Total	30,797,629	32,439,736

The increase in coal in 1898 was 1,570,434 tons, or 5.2%; in lignite, 71,673 tons, or 15.6%, and in the total of mineral fuel, 1,642,107 tons or 5.3%.

The strike of the Welsh coal miners in England and the higher ocean freight rates which generally prevailed, had some effect last year in decreasing the competition of British coal in the seaport towns. The railroad rates also have been adjusted so as to favor French coal more in the coast districts, which have taken foreign coal to some extent.

The advocates of the Trans-Saharan Railroad are getting many adherents, and people are beginning to see the necessity of the road, if we are to hold and utilize our territories in Central Africa. At present our authority there is hardly more than nominal. Azote.

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Locat'n.	Par val.	Apr. 14. H.	Apr. 14. L.	Apr. 15. H.	Apr. 15. L.	Apr. 17. H.	Apr. 17. L.	Apr. 18. H.	Apr. 18. L.	Apr. 19. H.	Apr. 19. L.	Apr. 20. H.	Apr. 20. L.	Sales.
Adams Con	Colo.	$10	.15	....	.15	....	.16	....	.15	....	....	....	....	....	....
Alamo	"	1	.07	....	.06	....	.07	....	.07¾	.07¾	.08	....	.08	.07	8,100
Alice	Mont.	25	.85	.75	.80	.76	.80	....	.80	.79	....	....	....	....	....
Alliance	Colo.	1	....	....	....	....	.10	....	.10	....	....	....	....	....	700
Anaconda, c	Mont.	25	44 00	43 75	45 50	44 25	48.75	45.75	48 25	47.63	49.25	48.25	....	....	39,585
Anaconda Gold	Colo..	5	.56	....	.56	....	.55	.53¾	.53¾	.53¼	.53	....	.53¼	.52¼	2,300
AnchoriaLel	"	1	....	....	93¾	....	.88	.87¾	.92¾	.91	.93	....	.92¾	.90	1,300
Argentum-Jun	"	2	.27	....	....	....	.26	....	.26	....	.26	....	....	....	....
Belcher	Nev..	3	.30	....	.30	....	.38	....	.30	....	.33	.30	....	....	500
Best & Belcher	"	3	.54	....	.55	.54	.55	....	.54	....	.50	....	....	....	400
Breece	Colo.	25	1.80	1.45	1.75	....	1 40	....	1.45	....	1.80	....	....	....	100
Brunswick	Cal.	1	.81	....	.20	....	.29	.25	.26	....	....	....	....	....	100
Bullion	Nev.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Burt Gold	Colo.	1	.09¾	....	....	....	....	....	....	....	....	....	....	....	....
Chollar	Nev..	3	.27	.24	.27	.25	....	....	.30	....	.25	....	....	....	....
Chrysolite	Colo..	50	.12	....	.13	.12	.13	.12	.12	....	....	....	....	....	....
Comst'k T.,b'ds	Nev..	100	.06	....	.06	....	$0.05	....	.05	....	.06	....	....	....	8,000
do. stock	"	100	.06	.06	.06	....	.05	....	.06	....	.05	....	....	....	4,200
do. scrip	"	100	....	....	.05	....	.05	....	.06	....	....	....	....	....	....
Con. Cal. & Va	Nev	2½	1.90	....	1 85	....	1.90	....	1 67	....	1.75	1 65	....	....	....
Con. Imperial	"	1	....	....	....	....	....	....	....	....	....	....	....	....	950
Cr & Cr. Creek	Colo..	1	.07	....	.07	....	.06	....	.07	....	.07	....	....	....	....
Crescent	"	10	.15	....	.15	....	.15	....	.15	....	....	....	.10	.09¼	3,000
Cripple Cr. Con	"	1	.09	....	.09	....	.09¾	....	.09¾	....	.09¾	....	....	....	800
Crown Point	Nev..	3	.25	....	.20	.15	.17	....	.25	....	.24	....	....	....	....
Dead w'd Terra	S.Dak	25	.60	....	.60	.55	.60	....	.60	....	....	....	....	....	1,000
Elkton	Colo..	1	.92	....	.91	....	.91	.90	.93	....	.93	....	.95	.92	1,400
El Paso	"	1	....	....	....	....	....	....	....	....	....	....	....	....	500
Enterprise	"	1	.80	....	.80	....	.30	....	.30	....	....	....	....	....	....
Findley	Dak..	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Garf. Con	"	1	.12	....	.12	....	.12	....	.12¾	.12¼	.12¼	....	.13	.12	3,400
Gold Coin C.Clk	"	1	2.00	....	....	....	1 95	....	2 00	....	1.95	....	2.00	1 90	700
Gold Coin Gilp	"	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Golden Fleece	"	1	.90	....	.82	....	.35	.34¾	.35¾	.35	.35¼	....	.36¼	.36	1,200
Good Samar'an	"	1	....	....	.05¾	.05¾	....	....	....	....	....	....	....	....	12,000
Gould & Curry	Nev..	3	.35	....	.35	.25	.38	....	....	....	....	....	....	....	....
Gregory Gold	Colo .	1	....	....	.09¾	....	....	....	....	....	....	....	....	....	1,000
Hale&Norcross	Nev	3	.28	.22	.28	.25	.33	....	.22	....	....	....	....	....	500
High Five	Colo.	1	....	....	.19¾	.19	19¾	.19¾	19¾	19¼	.19¾	....	.22	.19¾	6,500
Homestake	S.Dak	100	....	....	55.00	....	55 00	....	55 00	....	....	....	....	....	....
Horn Silver	Utah..	25	1 40	1.25	1.40	1 25	1 45	1 25	1.45	....	....	....	....	....	....
Iron Silver	Colo.	20	.60	.55	.60	.57	.60	.55	.58	....	....	....	....	....	600
Isabella	"	1	.84	....	.85¾	....	.85	....	.90	....	.84	.83¾	.91	.89	600
Jefferson	"	1	.05½	....	.05¾	....	.05½	....	.06¾	....	.05¾	.06¼	.06¼	.05¼	1,100
Jennie Blanche	"	1	....	....	.05¾	....	.05¾	....	.06¾	....	....	....	.05¾	.05¼	5,600
Justine	"	1	.01¾	....	.01¾	....	.01¾	....	.01¾	....	....	....	.02¾	.01¾	....
King & Pemb	Ont..	10	.16	.15	.16	.15	.16	....	.16	....	....	....	....	....	....
Leadville Con	Colo.	10	.12	....	.11	.10	.11	.10	.11	....	....	....	....	....	400
Little Chief	"	50	.20	.17	.19	.17	.19	.16	.20	.16	....	....	....	....	....
Mexican	Nev..	3	.60	.50	.66	.65	.65	....	....	....	....	....	....	....	300
Mollie Gibson	Colo .	5	.24	....	.25¾	....	.26	.25¼	.26	.25¼	.26	....	.26¼	.25¼	1,000
Moon Anchor	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Rosa	"	1	.24	....	.23¾	....	.25	.24½	.24	....	.25¾	....	....	....	4,400
Occidental	Nev.	3	....	....	....	....	.25	....	.27	....	....	....	....	....	....
Ontario	Utah.	135	6 50	....	6 50	....	6 75	....	6 75	....	7 625	7.70	....	....	200
Ophir	Nev ..	3	.80	....	.90	....	1 00	....	....	....	....	....	....	....	....
Pharmacist	Colo .	1	.07	.06	....	....	.07	....	.08	.07	.07	....	....	....	4,800
Phenix	Ariz..	1	.07	....	.07	....	.07	....	.07	....	....	....	....	....	....
Plymouth Con	Cal..	10	.1	....	.10	.09	.10	....	.10	....	....	....	....	....	....
Portland	Colo.	1	1.90	....	1 80	....	1 85	....	1.875	....	1 875	....	2 00	1 90	800
Potosi	Nev..	3	.25	.22	.25	.23	.25	....	.20	....	....	....	....	....	....
Quicksilver	Cal..	100	4 125	....	3 75	....	....	....	....	....	3 75	3.25	....	....	1,149
do. pref	"	100	9 00	....	13 0	....	....	....	....	....	....	....	....	....	420
Rocky Mtn	Colo .	1	....	....	.02	....	.02	....	.02	....	....	....	....	....	....
San Juan Star	"	1	....	....	....	....	....	....	....	....	.31	....	.32	....	200
Savage	Nev..	2½	.30	....	.30	.25	.24	....	.33	....	....	....	....	....	1,000
Sierra Nevada	"	3	.90	....	1.20	....	1 10	.90	1.00	....	....	....	....	....	500
Small Hopes	Colo..	20	1 35	....	1.30	....	1.35	....	....	....	....	....	....	....	100
Specimen	"	1	.06	....	....	....	....	....	.06	....	....	....	....	....	....
Standard Con	Cal..	100	2 25	....	2 25	....	2 60	2 50	2 25	....	2 50	....	....	....	1,000
Syndicate	"	1	....	....	....	....	....	....	....	....	.10	....	....	....	1,000
Union	Colo.	1	.18	....	.18	....	....	....	.18	....	....	....	....	....	....
Union Con	Nev..	2½	.40	....	.40	....	....	....	....	....	....	....	....	....	50
Union Gold	Colo..	1	.20	....	.20	....	.20¼	.20	.20	....	.20	....	.21	.20	700
Utah Con	"	8	.16	....	.15	....	....	....	13	....	13	....	....	....	1,200
Vindicator	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	"	1	.19	....	.19	....	.20	.18¾	.19	....	.20	....	.20	.18¾	2,28
Yellow Jacket	Nev..	3	.35	....	.35	.27	.41	....	.33	....	.41	....	....	....	800

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	51¾	51¾	52¼	52	54	53¾	54¾	54½	56¾	56¼	57	....	....
" " " pf	.....	100	88¾	88¼	89¼	88½	90¼	89¼	91	90¾	92¾	92½	92	....	....
" " " bds	.....	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Am.S.&W Co n	.....	100	66	65¼	67	66	67¾	65¾	67	65¾	67	66¼	....	....	56 033
" " pf'r n	.....	100	99½	98	99	98¾	99	98¾	98¾	98	99	97½	....	....	5,155
Central of N. J.	N. J..	100	*118	117¼	120	118	119¾	118¼	119¼	119	120¾	119¼	120¼	....	16,721
Col. Fuel & I..	Colo..	100	37½	33¼	45	38¾	46	40¾	41¾	41¼	49¾	45	49¾	....	97,795
Col. & H.C.&I.	Ohio..	100	13¾	....	13¾	....	13¾	13¾	15	14	18	16¾	16¾	....	2,690
Del. & Hud	N. Y.	100	118	....	123	118	123	121	123¾	121	124	122¾	124¾	....	38,616
Federal Steel	.....	100	68¾	66¾	69	64¼	69¾	66¼	67¾	66	69¼	67¼	67¾	....	100,81
" " pf	.....	100	87¼	86¼	87¼	87	87¾	86¾	86¾	86¼	87¾	86¾	86¾	....	20,583
National Lead	N. Y.	100	35	34¼	35¼	35	34¾	34¼	35¼	....	35	....	34¼	....	2,758
" " pf	Md...	100	....	....	113	....	112¾	....	113	....	113	....	113	....	170
National Sa't	.....	100	53	51¼	55	53	59	56	....	61	68	65	....	....	....
" " pf	.....	100	78	76	78	76	78	76	78	76	80	78	....	....	....
New Central C.	.....	100	37¼	....	....	....	....	....	....	....	....	....	....	....	100
N. Y., Ont. & W.	N.Y..	100	27	26¾	28	26¼	29¼	27¼	....	....	27¾	27¼	27¾	....	28,172
Phila. & Read	Pa..	100	23¾	....	24	24	24¾	24¼	24¼	24¼	24¾	24¼	24¾	....	17,770
" " 1st pf.	" ..	100	65¾	64¾	67	65¾	66¾	65¼	66¼	65¾	66¼	66	66	....	57,340
Standard Oil	.....	100	487	485	490	487	490	488	489	486	493¾	489¾	....	....	....
Tenn.C.,L&R.R.	Ala...	100	65	58¾	65¾	63¼	66	63¼	68	63¾	68	66	66¼	....	141,61
" " pf	"	100	....	....	....	....	110	....	....	....	....	....	....	....	60

* Ex-dividend.

PHILADELPHIA, PA.

NAME OF COMPANY.	L'cation.	Par Val.	Apr. 13. H.	Apr. 13. L.	Apr. 14. H.	Apr. 14. L.	Apr. 15. H.	Apr. 15. L.	Apr. 17. H.	Apr. 17. L.	Apr. 18. H.	Apr. 18. L.	Apr. 19. H.	Apr. 19. L.	Sales
Bethlehem I	Pa.	$50	....	....	....	....	106¾	....	....	....	....	....	....	....	300
Cambria Iron	"	50	45.50	....	45 25	45.00	45.25	45.00	45.38	....	45.38	....	45 50	45.00	1,210
Cambria Steel	"	50	24 00	23 25	23.50	23 13	23 25	....	23.38	23.00	23.00	....	23 50	22 75	14,138
Choctaw, pref.	I. T.	50	48.50	48.00	....	....	....	....	47 00	....	....	....	46.38	46.00	591
Choc. Tr. ctf.	"	50	....	....	....	....	36.75	....	36.75	....	37 00	36 00	36.50	....	1,011
Lehigh Val	Pa.	50	27.50	....	27.38	27.63	28.50	27.25	28 50	27 75	28 25	27 88	27 75	....	1,321
Penna. R. R.	"	50	66 75	66.50	66.75	66.38	66.75	....	66.75	66 63	66 75	....	66 75	66 50	4,534
Penna. Steel	"	100	72.00	68 00	70 50	....	70 00	....	70.75	70.00	70.00	....	72 00	70.50	2,382
" "pr'f	"	100	....	....	85.00	....	....	....	81 00	....	....	....	83.00	....	70
United Gas I	"	50	173¼	172	172	171¾	172	171	171	170¾	171	170¾	171¾	170¾	2,840
Welsb. of Can	Can.	100	4.00	3 88	3.88	3.50	3 50	....	3.75	....	3.50	....	3 75	3.50	1,991
Welsb. Coml	"	100	18.00	....	....	....	....	....	....	....	....	....	....	....	15
" " pf.	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Welsb. Light	"	100	59 00	57.75	57.00	56.25	56.50	55 00	55 50	55.00	58.25	55.50	....	....	4,068

Total shares sold, 34,474.

BALTIMORE, MD.‡

April 20.

NAME OF COMPANY.	Location.	Par value	Bid.	Ask	NAME OF COMPANY.	Location.	Par value.	Bid.	Ask
Atlantic Coal	Md...	$10	....	....	Howard C.&C	Md....	$5	....	....
Big Vein Coal	"	10	....	....	Newburg Orrel C.	"	25	....	....
Consolidation Coal	"	100	56	....	Silver Valley	N. C...	5	....	....
George's Creek Coal	"	100	....	118					

ST. LOUIS, MO.

April 19.

NAME OF COMPANY.	Location.	Par value.	Latest Bid.	Latest Ask.	Sales.	NAME OF COMPANY.	Location.	Par value.	Latest Bid.	Latest Ask	Sales.
Am. Gold	Colo.	$10	....	....	....	Granite B.	Mont.	$10	$1.70	$1 85	3,000
Am. Nettie	Colo.	10	$1.27½	$1.40	100	Hope St. L.	Mont.	10	....	....	....
Central L	Mo.	100	....	....	....	St. Joe. L.	Mo.	10	15 50	....	....
Doe Run L.	Mo.	100	....	....	....	Sm. Hopes.	Colo.	20	1.25	1.85	300

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Apr 13. H.	Apr 13. L.	Apr 14. H.	Apr 14. L.	Apr. 15. H.	Apr. 15. L.	Apr. 17. H.	Apr. 17. L.	Apr. 18. H.	Apr. 18. L.	Apr. 19. H.	Apr. 19. L.	Sales.
Aetna, cons. g.	$5	100,000	....	....	....	....	....	....	....	....	4.25	....	....	....	700
Adven'u'e,Cons	25	100,000	13.75	....	....	....	....	....	14.25	....	....	....	13 50	....	220
Allouez, c	25	80,000	11 25	....	10.88	....	....	....	11 25	11.00	11.38	11.00	11 00	....	1,200
Arcadian, c	25	100,000	65 50	68.00	70 25	69 00	69 00	68.25	68.50	....	....	....	69 00	68.00	1,280
Arnold, c	25	60,000	....	....	10 00	9.50	10.00	9 75	10.00	9.50	10 00	9 50	....	....	491
Ashbed, c	25	40,000	....	....	....	....	....	2.00	1.50	1.88	....	....	....	....	200
Atlantic, c	25	40,000	34.00	....	34 00	....	....	34.00	33.50	33.75	....	....	....	....	125
Baltic, c	25	100,000	33 25	33 50	33.00	32.50	33.25	33.00	33.00	....	....	....	....	....	1,182
Bingham	....	....	.20	....	.25	....	....	....	.25	....	....	....	16 00	15 00	3,170
Bonanza, g	10	300,000	3 00	2 75	2 88	2.75	....	....	....	....	4.25	3 13	4 50	4.00	10,053
Bost. C. C., g	2	200,000	.25	....	....	....	....	.30	.25	....	....	....	....	.25	2,150
Bos.&Mon.Tr R	25	150,000	365	360	375	370	373	....	....	....	375	370	374¼	....	1,915
BritishCol.,Ltd	5	200,000	....	....	11 00	0.25	....	....	....	....	10 50	....	10 50	10 25	2,440
Butte & Bost., c	10	200,000	89 00	....	95.00	92 00	93 00	91 00	93 00	....	94 00	92 00	94.00	91.50	2,595
Cal. & Hecla, c	25	100,000	820	815	825	....	....	....	820	....	840	825	840	837	115
Catalpa	....	....	.20	....	.25	....	....	....	.25	....	....	....	.30	....	1,300
Centennial, c	25	90,000	43.75	42 50	45 00	43 00	45 00	44 50	45 13	44 00	44 00	43.75	....	....	3,055
Cochiti, g	10	150,000	....	....	14 50	14 00	....	....	14 13	14 00	14.50	....	....	....	765
Copper Range	10	800,000	47 00	....	48 00	47 50	....	....	48.00	47.00	48 50	47.00	....	....	370
Crescent, s	10	300,000	....	....	.25	.20	....	....	.25	....	....	....	....	....	400
Dominion Coal	100	150,000	54 00	53.25	54 75	54.00	....	....	59.00	57.00	56.00	55.00	....	....	6,090
do. pref	100	30,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Federal Steel	100	464,843	69 13	66 25	69 63	66 50	....	....	69 75	68.63	67 50	65 50	....	....	24,774
do. pref	100	527,676	87.75	86 25	87 50	87 00	....	....	88 00	86.75	86 25	85 50	....	....	2,080
Franklin, c	25	80,000	27.00	26.50	27.00	26.00	26.75	26.50	27 00	26.50	26.75	26.25	....	....	374
Gold Coin	5	200,000	1 00	....	....	....	....	....	1.00	....	....	....	....	....	115
Humboldt, c	25	40,000	2 00	....	....	....	2 25	....	....	....	2 25	1.50	....	....	310
L Royal Con. c	25	100,000	73.00	72 50	73 50	73 00	73 00	....	....	....	73 00	72 00	72 00	70 50	1,746
Mass	....	....	....	....	....	....	....	....	....	....	....	....	14 00	13.50	945
Merced, g	15	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Mohawk, c	25	100,000	35.50	35.00	35.50	35 00	36.88	36 63	37.00	36 50	36 75	36.00	....	....	1,105
Napa	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
National	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	....
New Idria, q	5	100,000	12 00	....	12.00	....	....	....	....	....	....	....	....	....	325
N.A.Gold Dre'g	10	100,000	38 00	....	....	....	....	....	....	....	37.00	36.50	36 00	35 00	1,150
Old Colony, c	25	100,000	16.00	....	17 00	16 00	8.00	17 00	17.00	16 00	17 00	16.50	....	....	990
Old Dominion,c	25	150,000	45.00	44 63	47.13	46 00	47.00	46.00	47 25	....	75 00	....	....	....	5,250
Osceola, c	25	98,000	92 75	....	93 88	92.50	93 00	92 00	92.75	92 00	....	....	....	....	611
Parrot, s c	10	230,000	54 50	53 00	55.50	54 88	57.00	....	59 50	56 50	58 00	57 00	....	....	5,814
Pioneer, g	10	100,000	3 25	....	3 25	....	3 13	....	....	....	3.25	....	....	....	220
Quincy, c	25	100,000	....	....	....	....	170	165	170	....	....	....	....	....	116
Rhode Island	25	100,000	14 00	13.25	14.00	13 50	14 00	13 50	14 00	....	14.00	13 00	....	....	1,630
Santa Fe, g. & c	10	250,000	17 00	16 00	16.50	16.13	16 75	16 63	16 88	16 75	16 25	15 88	....	....	3,185
San. Ysabel, g.	5	130,000	14 50	....	....	....	14 50	14 25	14.00	13 00	13 5.	12 5.	....	....	2,089
Tamarack, c	25	60,000	240	....	....	....	245	238	240	235	240	236	....	....	72
Tecumseh, c	25	40,000	8 25	8.00	7.75	....	....	....	....	....	8 00	7 75	....	....	380
Trimountain Mg	25	100,000	13.50	13 25	13.50	13.00	....	....	13 50	13.25	13 50	....	....	....	1,090
U C L. & Mg. Co	25	80,000	8 00	7 25	....	....	....	....	8 50	8.13	8.50	8.13	....	....	395
Utah Cons,g &c	5	300,000	46.00	45.25	46 50	45.88	46 25	46.00	46 50	46.00	46 50	45.00	....	....	9,610
Victor, g	5	200,000	....	....	3.50	....	....	....	3 50	....	....	....	....	....	115
Washington	25	40,000	2.50	....	....	....	3 00	2.50	2.75	....	2.75	....	....	....	350
White Knob	100	58,000	17 50	....	....	....	18.00	....	....	....	....	....	....	....	100
Winona, c	25	100,000	17 00	....	17 00	....	17.50	17 00	17.00	....	17 00	....	....	....	650
Wolverine, c	25	60,000	46.75	46.00	47.00	46.00	47 00	46 75	47 38	46 75	47 25	47 00	....	....	1,091

†Official quotations Boston Stock Exchange. Total sales, 195,163

CLEVELAND, O.

April 19.

NAME OF Co.	Iron Range.	Par Val.	Apr. 12. Bid.	Apr. 12. Ask.	NAME OF Co.	Iron Range.	Par Val.	Apr 12. Bid.	Apr 12. Ask.
Aurora	Gogebic	$25	$15	$4	Jackson	Marquette	$25	....	....
Champion	"	25	15	25	Lake Superior	"	25	$40	$45
Chandler	Vermillion	25	59	60	Minnesota	Verm. & Mes	100	91	92
Cleve'd-Clfs	Marquette	100	85	90	Pitts & L'keAng	Marquette	25	115	125
Fed. Steel Co.	....	100	29½	30	Republic	"	25	15¾	16

BUTTE, MONT.*

April 17.

NAME.	Location.	Par Val	Quotat'ns. Bid.	Quotat'ns. Ask.	Sales.	NAME.	Location.	Par Val	Quotat'ns. Bid.	Quotat'ns. Ask.	Sales.
Alice g	Mont.	$25	$0.60	$1.00	....	Lone Pine C., g	Wash	$1	....	$0 39	....
Am. Dev. & M	"	5	.05	.25	....	Mont. Ore P	Mont.	25	....	150.00	....
Anaconda, g	"	2	....	47.00	....	Morn. Glory, g	Wash	0.10	....	.10	....
Hope (Bash)	"	....	....	2.00	....	Mountain L	"	0.10	....	.90	....
Black Tail, g	Wash	1	....	.13	....	New South Cr's	Mont	....	$0.08	....	....
Con. Gran.-Blm.	Mont.	....	1.50	1 60	....	Number Six, g.	Wash	0.10	....	.06	....
Con. Tiger-Poor	Idaho	1	.30	.40	....	Rebate, g	....	....	....	.20	....
Gold Mn. (Ruby)	Mont.	....	....	.30	....	Republic G	"	1	....	4.00	....
Iron Mn, g	"	....	.05	.15	....	San Poil, g	"	1	....	.74	....
Jim Blaine, g	Wash	1	....	.43	....	Tom Taumb, g	"	1	....	.18	....

* Specially reported by the Hewett-Sibley Company.

COLORADO SPRINGS COLO.‡

NAME OF COMPANY.	Par val	Apr. 10. H.	Apr. 10. L.	Apr. 11. H.	Apr. 11. L.	Apr. 12. H.	Apr. 12. L.	Apr. 13. H.	Apr. 13. L.	Apr 14. H.	Apr 14. L.	Apr. 15. H.	Apr. 15. L.	Sales.
Alamo	$1	.07¾	.07¾	....	....	....	....	.07½	....	.07¾	....	....	....	17,000
Anaconda	1	.55	....	.54¾	....	....	....	54	....	....	....	....	....	3,750
Arg'ntumJ	1	29	29¾	.29	....	....	....	....	....	....	....	....	....	1,200
C. C. Con	1	.09¾	....	.09¾	.09¼	.09¾	....	.09¼	....	....	....	.09¾	....	10,500
Crocesus	1	....	....	....	....	0.5	....	....	....	....	....	....	....	5,000
Dante	1	.11¾	.11¾	.11¾	....	....	....	....	....	.11¾	.11½	.11¾	.11¾	27,000
ElktonCon	1	.92½	93	....	....	92	....	....	....	.91¾	....	.92	....	16,600
El Paso G	1	.20¾	.20¾	.21¾	....	....	....	.19¾	.20	....	....	....	....	18,703
Fanny R	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Favorite	1	....	.04¾	....	.04¼	....	....	....	....	.04¾	....	....	....	2,500
Findley	1	.15	....	.14¾	.15	.14¾	....	.14¾	....	.14	....	.14	....	31,700
Golden Fl	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Hayden G	1	.01¾	....	.01¾	....	.01¾	....	....	....	....	....	....	....	41,000
Ing. Con	1	....	....	....	....	....	....	.07¾	....	....	....	.07¼	.07¾	4,500
Isabella	1	.88	.89	.88	.91¾	.89¾	.89¼	.88	.89¼	.86	.86¾	.85	.85¼	85,200
Jack Pot	1	.44¼	.45	.44¼	.45¾	.44	.44¾	.44¼	.44¾	.43¾	.44¼	.44¼	.41	255,300
Lexington	1	.07¾	....	.07¾	....	.07¾	....	.07¾	....	.07¾	.07¾	.07¾	.08¼	31,500
Ma'net R	1	....	....	.03¼	....	.03¼	....	.03¼	.03¾	.03¾	....	.03¼	....	18,000
Marion	1	....	.002¾	.003	....	.

STOCK QUOTATIONS.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Apr. 10. B.	Apr. 10. A.	Apr. 11. B.	Apr. 11. A.	Apr. 12. B.	Apr. 12. A.	Apr. 13. B	Apr. 13. A.	Apr. 14. B.	Apr. 14. A.	Apr. 15. B.	Apr. 15. A.	Sales.
Mines:														
Anac'da G.	$5	53	....	.54	.57½	.53	.55	52½	....	....	....	.51	.54	....
Arg. J.....	1	....	....	.29½	31½	28	31	28½	....	....	....	.29	....	700
Bankers....	1	.08½	.09	.08½	....	.08½	.09½	.08½	.09½	....	....	.08½	.09½	1,000
CrippleC.C.	1	.05½	.09½	.09½	.09½	.08½	....	....	....	....	....	....	....	10, 00
Della S....	1	.02½	....	.03	....	.02½	....	.02½	....	....	....	.02½	....	....
Elkton Con.	1	.90	....	.91	.93	90	....	91	95	....	....	.91½	.92½	500
El Paso....	1	....	....	.20	.20½	.19½	....	.19½	.20½	....	....	....	....	....
Enterprise	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Fanny R....	1	.41	....	.42	....	.42	....	.47	....	....	....	.50	....	100
Findley....	1	.14	....	....	....	....	....	.14½	.15	....	....	....	....	....
Garf. Con..	1	.12½	.13	.13½	....	.12½	.12¼	.12½	.13½	....	....	.12	.12½	....
Gold Coin.	1	1.90	....	2.00	....	2 01	2.50	1.90	....	....	....	1.90	....	....
Gold Fleece	1	....	....	32	40	.30	....	.30	....	....	....	....	....	....
Gold Eagle.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Indepnd'nc	1	.59	.65	.60	.62½	.61	.63½	.60	.61	....	....	.59½	.62	2,700
Iron Clad.	1	.03	.03½	.03	.03½	.03	.03½	.03	.03½	....	....	.03	.03½	24,000
Isabella....	1	.88½	.89½	.87½	.89	87½	.88½	87½	....	....	....	.85	.86	5,100
Jack Pot....	1	.44½	.44¾	.44	.45	.42½	.44½	.43	.44½	....	....	.42¾	.43½	6,500
Jefferson..	1	.05½	.07	.04	....	.06	....	....	....	....	....	....	....	....
Keystone ..	1	....	....	.08	....	.09	.1 ¾	....	....	....	....	.08½	.08¾	5,000
LosAngeles	1	.11¾	.13¾	.10¾	.11¾	.11	.11¾	.10¾	.11¾	....	....	.10½	.11½	....
Mollie Gib.	5	.25	.29½	.25	.26	.24	.28	....	.28	....	....	....	....	....
NewZealnd	1	....	.25	.20	.24	.20	.25	....	....	....	....	.21	.25	....
Ophir	1	....	.33	.25	....	.27½	.29	.27½	.29	....	....	.28½	.30	....
Pharmacist	5	.05	.05½	.05	....	.05¾	....	.05¾	.06½	....	....	.06¾	.06¾	10,500
Portland..	1	1 88	....	1.87½	....	1.85	....	1 85	....	....	....	1.87	1 89	....
Pr. Albert..	1	.04¾	.04¾	.04	.04¾	.04	.05¾	.03¾	.04¾	....	....	....	....	....
Specimen..	1	.08	.09	.08½	.09	.08	....	....	....	....	....	....	....	10,000
Union Gold	1	.20½	....	.20	.20¾	.19½	.20	19	.19½	....	....	.19	....	38,500
Va. M.	1	....	....	.03¾	.03¾	.03¾	.03½	03	.03¾	....	....	....	....	....
Work.....	1	.18½	.19	.18¾	.19¼	.19	.19¼	.18¾	.19¼	....	....	.19¾	....	16,000
Prosp'cts:	1													
Ben Hur..	1	....	....	.04¾	....	.04½	....	.04½	....	....	....	.04½	.05¾	....
New Haven	1	.02	....	.02	....	.02	.02½	.02½	....	....	....	.02	.02½	....
Reno....	1	.02¾	.02½	.02¼	.02½	.02¾	.02½	.02½	.02½	....	....	.02½	.02½	5,000
Tamarack..	4	....	.006	.006	.06¼	.006	....	.006	....	....	....	....	....	....
Miscell.:														
Acacia.....	1	.10	.10¼	.09¾	.09¾	.09½	.10	.09¾	....	....	....	.09½	.10	19,000
Alamo.....	1	.05½	.05¾	.07¼	.07¾	.05½	.05¾	.07¼	....	....	....	.07	....	12,700
Buckhorn..	1	.03¼	.03½	.02¾	....	.02½	....	.03½	.05	....	....	....	....	17,000
C. C. & M....	1	.06¾	.06¾	.06½	.07¼	.06¾	.06¾	.06¾	.06¾	....	....	.06¾	.06¾	5, 00
Franklin...	1	.01¾	....	.02	....	.02	....	.02¼	....	....	....	.02½	.02¾	5,000
Goldstone..	1	....	....	.009½	.01¼	.009	....	....	....	....	....	....	....	....
Mobile.....	1	....	....	.03¾	....	....	....	.03¾	.04¼	....	....	.04¾	.05¼	2',000
MountainB.	1	.05¾	.05¾	.05¼	.05¾	.04¾	.05¼	.04¾	.05¼	....	....	.05¾	....	99,000
Omega.....	1	.02¾	.02¾	.02¾	.02¾	.02¼	.02¾	.02¼	....	....	....	.02¼	.02¼	7,000
Pinnacle....	1	....	....	.12¼	.12¾	.12¼	....	.12¼	.13½	....	....	.13	.13¾	5,000
Trachyte....	1	....	....	.04½	.04¾	.04¼	....	....	....	....	....	....	....	....

‡ Official Quotations Denver Stock Exchange. Sales: Mines, 131,900 shares; Prospects, including those mentioned, 5,000 shares; Miscellaneous, 189,500 shares; total, 326,400 shares.

SALT LAKE CITY, UTAH.* April 8

STOCKS.†	No. of shares	Par val.	Bid.	Asked.	STOCKS.†	No. of shares.	Par val.	Bid.	Asked
Ajax.....	300,000	$10	$1.47½	$1.48	Homestake.....	400,000	$1	$0 12	$0.13½
Alice.....	400,000	25	.....	.....	Horn Silver.	400,000	25	1 25	1 75
Anchor.....	150,000	10	.....	1.00	Little Pittsburg	400,000	5	.09¾	.10¾
Buckeye.....	500,000	1	.05	.05½	Lower Mammoth	150,000	1	87	.87½
Bullion-Beck & Ch.	100,000	10	5 10	5.65	Mammoth.....	400,000	5	1.75	1.76
Centennial Eureka	30,000	50	50 00	54 50	Mercur.....	200,000	25	6 77½	6.80
Chloride Point..	500,000	1	.90	1 00	Northern Light..	400,000	5	64½	.65
Daisy.....	500,000	3	.42½	.42¾	Omaha.....	300,000	2	.39¾	.42
Dalton.....	500,000	5	.01¾	.01¾	Ontario.....	150,000	100	6.25	7.00
Dalton & Lark....	2,500,000	1	.10	.10½	Richmond-An. ...	500,000	1	11	.75
Daly.....	150,000	20	1.22	1.25	Sacramento ...	1,000,000	5	.47¾	.18¾
Daly West.....	150,000	20	10.20	10 50	Silver King.....	150,000	20	35 00	40.0
Dexter.....	200,000	5	2.31	2 50	Star Consolidat'd	500,000	1	1.10	1.11
Eagle.....	150,000	1	.07	.07¾	Sunbeam.....	250,000	1	.58	.64
Eagle & Blue Bell.	250,000	1	1 67	1.80	Sunshine.....	250,000	10	78	.87½
Emerald.....	300,000	1	.13¾	.16	Swansea.....	100,000	5	3 90	4 5
Four Aces.....	250,000	1	.42¾	.42½	South Swansea..	100,000	1	1 27	1 27½
Galena.....	100,000	10	.....	.43¾	Tetro.....	300,000	1	06	.09
Geyser-Marion....	300,000	5	.75¾	.76	Utah.....	100,000	1	.61	.80
Grand Central	250,000	1	7 82½	8.50	Valeo.....	200,000	10	1.20	1.30

*From Our Special Correspondent. † Utah companies. ‡ Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

SPOKANE WASH.‡ March 15.

Name.	No. of shares.	Par value.	Quotations.	Name.	No. of shares.	Par value.	Quotations
Ben Hur.....	600 000	$1	$0.28½	*Number Six.....	1,000,000	$0 10	$0.12
Black Tail.....	1,000,000	1	.17	Palo Alto.....	1,000,000	1	14½
Bryan & Sewall.....	1,000,000	1	05	*Pearl	1,000,000	1	12½
Butte & Boston....	1,000,03	1	.17¾	Pcahontas.....	1,000,01	1	14
Eardman	1,000.000	1	.03	Princess Maud.....	1,000,000	1	6
Eureka First Thoug't	1,000,000	1	.05	Quilp	1,000,000	1	8
Eureka Queen.....	1 000,000	1	.08¾	*Rebate.....	1,000,000	1	9
Gold Harvest Con...	1,000,000	1	.07¾	Republic Gold....	1,000,000	1	3 75
Gold Leaf	1,000,000	1	.05	Republic Big Six....	1,250,000	1	18¾
Iron Monitor.....	1,000,000	1	.09¾	Republic No 2.....	1,000 000	1	6¾
*Jim Blaine.....	1,000,000	1	.57	San Poil.	500,000	1	8
Liberty	1,000,000	1	.04	*Surprise.....	1,000,000	1	12
*Lone Pine Con.....	1,0 0,000	1	.42½	Thoughtful.....	1,000,000	0 10	.06
Merrimac.....	1,000,000	0.10	.09¾	Tom Thumb.	1,000,000	1	22
Monroe.....	1,000,000	1	.03	Trade Dollar	1,000,000	0.10	12½
Morning Glory....	1,000,00	0 10	.20	Treasury.....	1,000,000	0 10	05
Mountain Lyon....	1,500,000	1	.87½	.....	.....	.....	.....

‡ Telegraphic quotations of the British-Canadian Investment and Mining Syndicate. * Under Republic management. Total sales, 283,000 shares.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par. value.	Apr. 13.	Apr. 14.	Apr. 15.	Apr. 17	Apr. 18.	Apr. 19.
Alpha Con.....	Nev.	1.00	.05	.06	.06	.06	.05	.04
Alta.....	"	2.00	.09	.08	.09	.09	.09	.09
Andes.....	"	3 00	.15	.13	.13	.12	.11	.12
Belcher.....	"	3 00	.36	.32	.35	.34	.33	.32
Best & Belcher....	"	3 00	.59	.59	.59	.58	.56	.54
Bullion.....	"	1 00	.02	.02	.02	.02	.02	.02
Caledonia	"	3 00	.33	.31	.31	.31	.30	.29
Challenge Con.....	"	3.00	.30	.30	.30	.30	.30	.29
Chollar.....	"	3.00	.30	.29	.31	.31	.31	.30
Confidence.....	"	3.00	.....	.....	.78	.....	.75	.75
Con. California & Virginia..	"	2 50	1 80	1.75	1.75	1 68	1 70	1.65
Cons. Imperial.....	"	1 00	.....	.01	.01	.01	.01	.01
Cons. New York.....	"	1.00	.02	.02	.02	.02	.....	.....
Crown Point	"	3 00	.20	.18	.19	.19	.19	.19
Exchequer.....	"	1.00	.....	.....	.....	.....	.....	.....
Gould & Curry.....	"	3.00	.39	.40	.40	.39	.38	.37
Hale & Norcross ..	"	3 00	.29	.28	.27	.26	.25	.24
Julia Con.....	"	1.00	.....	.....	.53	.02	.02	.02
Justice.....	"	2.00	.18	.17	.15	.14	.15	.06
Kentuck Con.....	"	1 00	.04	.04	.04	.04	.04	.04
Mexican.....	"	3.00	.58	.59	.57	.57	.56	.52
Occidental Con.....	"	3 00	.33	.32	.30	.33	.33	.33
Ophir.....	"	3 00	1.10	1.10	1.10	1 16	1.10	1 10
Overman.....	"	2.00	.12	.12	.12	11	.12	.12
Potosi.....	"	3 00	.26	.26	.25	.23	.22	.23
Savage.....	"	2 50	.27	.29	.29	.28	.26	.25
Seg. Belcher & M....	"	2.00	.03	.....	.04	.....	01	.01
Sierra Nevada.....	"	3 00	1 06	1.10	1.00	1.05	1 00	.95
Silver Hill.....	"	1 00	.....	.....	.....	.....	.....	.....
Standard.....	Cal.	10.00	2 50	2 50	2 50	2.50	2 50	2.50
Union Con....	Nev.	2 50	.50	49	.48	48	.46	.43
Utah Con.....	"	1 00	.14	.13	.13	.11	.11	.11
Yellow Jacket.....	"	3.00	.37	.37	.38	37	.37	37

Official telegraphic quotations of San Francisco Stock Exchange

TORONTO, CAN.*

NAME OF COMPANY.	Par val.	Apr 12. B.	Apr 12. A.	Apr. 13. B.	Apr. 13. A.	Apr 14. B.	Apr 14. A.	Apr. 15. B.	Apr. 15. A.	Apr. 17. B.	Apr. 17. A.	Apr. 18. B.	Apr. 18. A.	Sales
Ontario:														
Golden Star	$1	53¾	.57	.55¼	.60	4 52	54	.52¾	.54	.52¾	56	.56	.60	58,175
Ham Reef.	1	.43	.46	.44	.48	.44¾	.45¾	43¾	.47	.43	.46	43	.45¾	1,248
J. O. Al. .. .	1	.....	.....	.08	.09¾	.07	09¾	.07¾	.08	.07¾	.10	.08	.10	3,000
Olive.....	1	.....	.....	88	.95	.85	.93	.85	.90	.85	.92	.86	.93	....
Sentinel....	1	.....	.....	.16	.19	.....	.....	16	.19	.....	.....	.....	.....	.....
British Col.:														
Athabaska.	1	.45	50	.45	.50	.45	.53	.44¾	.48	.45	.52	45	.52	500
C'riboo..	1	1 52	.....	.....	.....	1 53¾	1.54	1.51	1.55	.....	.....	.....	.....	4,250
CrowsN.P.C	1	.....	.....	42.00	47 00	.....	.....	42.00	46.00	.....	.....	.....	.....	.....
Dardanelli's	1	08¾	.11	09¾	.10¾	.08	.12	.11	.10¾	.08	.11	.08	.11	3, 00
Deer Park..	1	.04¾	.06	.05	.....	.04¾	.08	05	.06	.05	.07	.05	.10	2,500
Eve'ingStar	1	.10	.13	.....	.....	.10	.12	.10	.11	.10	.12	.10	.12	....
Iron Colt...	1	.....	.....	.17¾	.....	.....	.....	.17	.19	.....	.....	.....	.....	500
Minnehaha.	1	.24	.28	.....	.....	.25	.25¾	24	30	.25	.26	.24	.26	15 0
Monte Crist	1	.10¾	.12	10¾	.....	08	.11	11	.12	.11	.15	.10¾	12	400
Noble Five..	1	.....	.....	.29½	.33	.33	.....	.29¾	.32	.....	.....	.30	.....	....
N'rt'n Belle.	1	.....	.. ..	.02¾	.03¾	.....	.....	.02¾	.03	.....	.....	.....	.....	....
Noveity.....	1	.....	.....	.....	.....	.04	.05	.04	.05	.04	.05¼	.04	.05	....
Rambler C.	1	.....	.....	.31	.36	.....	.....	.32¾	.35	.....	.....	.....	.....	1 000
Rathmullen	1	.....	.....	06¾	.....	.....	.....	.06	08	.....	.....	.....	.....	500
St. Paul.	1	.....	.....	.02¾	.03¾	.....	.....	.....	.....	.....	.....	.....	.....	....
Tin Horn....	1	.....	.....	.....	.....	.....	.....	.12¾	.13	.....	.....	.....	.....	.....
Van Anda..	1	.....	.....	.03¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Victory Tri	1	.....	....	.07¼	.09¾	.07¾	.09	.07	.09	.07	.09	.09	.....	1 000
War Eagle..	1	3.57	.....	3.54	3.58	3.56	3.57	3 56	3 60	.....	.....	.....	.....	8,500
Waterloo....	1	.11¾	....	.11¾	....	10	.12	.10	.11¾	10¾	.11¾	.11	11¾	2, 00
White Bear.	1	.....	.....	04	04¾	03	04¾	.04	05	03	.04¾	.08	.04¾	....
Develop Co.														
B.C. Gold F.	1	....	.....	.05¼	.06¾	....	....	05¾	.06¾	.....	.....	.....	.....	5,300
Can. G. F. S.	0.10	....	....	.06	.08	.05	.08	06	.07¾	.05	.08	.05	.08	....
Gold Hills...	1	.....	.....	.08	.10	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Official quotations of the Toronto Mining and Industrial Exchange. Total shares sold, 76,258. † Ex-dividend.

ROSSLAND, BRITISH COLUMBIA.* April 13.

NAME OF COMPANY.	No. of shares.	Par value	Selling price.	NAME OF COMPANY.	No. of shares.	Par value	Selling price.
Brandon & Gold. Cr..	1,500,000	$1	$0 30	Lerwick.....	500,000	$1	.....
Brit. Amer. Corp'at'n	7,500,000	5	4 60	Lily May.....	1,000,000	1	$0 20
Brit.Col. Dev. Co....	1,500,000	2½	6.50	Lon.&Van.Fin.Dev.Co	500,000	5	.....
Canadian Gold Fields	10,000,000	0 10	.10	London B. C Gold F..	250,000	5	5 50
Cariboo.....	1,500,000	1	1.75	Monte Cristo	1,000,000	1	.....
Commander.....	500,000	1	.....	New Gold Fields, B.C.	250,000	1	5 25
Deer Park..	1,000,000	1	.....	Novelty.....	1,000,000	1	04
Dundee.....	1,000,000	1	35	Queen Bess Prop....	120,000	5	3.00
Evening Star.....	1,000,000	1	.08	Rambler Con.....	1,000,000	1	35
Fern	200,000	½	50	Reco.....	1,000,000	1	.....
Gold Fields of B.C..	3,000,000	3½	5 25	Red Mt.View	1,000,000	1	.....
Hall Mines.....	250,000	5	3.50	St. Elmo.	1,000,000	1	.....
Hattie Brown.....	1,000,000	1	.....	St. Paul.....	1,000,000	1	.....
Homestake.....	1,000,000	1	.05	Sarah Lee.....	1,000,000	1	.....
Iron Colt..	1,000,000	1	.....	Silver Queen.....	1,500,000	1	.15
Iron Horse.....	1,000,000	1	.18	Slocan Star.....	500,000	1	2.00
Iron Mask.....	500,000	1	.75	Vic.Tr. MinesDev. Co.	25,000	5	.....
Josie.....	700,000	1	.....	Virginia	500,000	1	.....
Jumbo.....	500,000	1	.....	War Eagle Con.....	2,000,000	1	4.20
Kenneth.....	1,000,000	1	.....	Waverly Mines.....	100,000	5	.75
Keystone.....	1,500,000	1	.....	White Bear.	2,000,000	1	.10
KootenayGold Fields	20,000	5	.....	Wild Horse.....	400 000	1	.....

* From Our Special Correspondent.

MEXICO. April 13.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g
Chihuahua:					Hidalgo:				
Gloria.....	1,500	.....	$50	$50	Real del Monte..	2,354	10 00	760	760
Durango:					San Francisco Hc	6,000	2.00	220	220
Barradon y Cab....	2,400	.....	100	80	San Rafael y An.	1,200	10.00	1,000	1,010
Candelaria de Pan.	1,200	.....	20	20	do. aviado	1,200	6.00	460	400
Capuzayas.....	2,400	.....	50	50	do. del Oro.....	3,000	.....	20	20
Penoles.....	2,500	30.00	2,000	2,000	Soledad.....	960	5 00	350	350
Restauradora.....	10,000	.....	30	20	Sorpresa.....	960	5.00	200	200
Rosario y Anexas.	4,800	.....	10	10	Union Hacienda.	2,000	4.00	385	380
Guanajuato:					Mexico:				
Angustias.....	2,400	5.00	410	390	Coronas	500	.....	75	75
Cinco Senores y An	2,000	15.00	390	360	Esperanza y An..	3,000	10.00	1,750	1,750
El Oro.....	500	.....	30	30	Michoacan				
do. pref.	2,000	.....	30	30	Luz de Borda ava	3,000	.....	35	50
Guadalupe Hacie'a	10,000	4.00	240	240	do aviado.....	1,000	.....	20	20
Trinidad, aviador .	2,000	...	110	125	Pueblo:				
do. aviado.....	400	... ...	80	100	Tlauzingo..... ..	2,400	.....	27	28
Zona Minera de Paz	2,400	.. ..	68	65	S. Luis Potosi:				
Hidalgo:					Concep. y An....	2,400	.....	160	100
Amistad y Concord.	9,600	1.52	28	29	Sta. Mariadela Paz	2,400	10 00	715	720
Arevalo.....	720	.....	200	200	Zacatecas:				
Bartolome de Med.	2,000	3.00	80	80	Asturiana y An..	2,500	10.00	100	80
Carmen..... ..	1,100	7.75	560	560	Cabezon	2,400	.....	15	15
Luz de Maravillas..	1,100	.....	200	200	Celelar. de Pinos.	2,500	.....	90	95
Pabellon.....	1,000	27.89	20	20	Palma de Somb..	2,400	.....	100	80

NOTE.—In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Mar 11.

NAME OF COMPANY.	Location.	Capital paid.	Sh. Val. paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sal
Arturo Prat, silver.....	Chile..	$3,300,000	$100	4 p. c.	1897	16¾	17	17
Caracoles, silver	" ...	315,000	100	10 "	1894	.....	.....	.....
Huantajaya (mine) silver	" ...	1,000,000	100	13 "	1894	.....	.....	.....
Huanchaca, silver.....	Bolivia,	8,000,000	25	4 "	1895	38	42	43
Oruro, silver.....	Chile...	800,000	200	.....	.....	290	300	300
Todos Santos, silver.....	"	2,000,000	100	1 "	1895	6	8	6
Agua Santa nitrate.....	"	3,000,000	50	5 "	1898	154	155	154
Antofagasta, nitrate.....	"	2,000,000	200	2 "	1898	135	140	138
Bco. Internacional, nitrate	"	3 0 ,000	80	.....	.....	3	5	....
Union, nitrate.	"	3, 0,000	200	.....	.....	38	42	40

* Special report of Jackson Bros. Values are in Chilean pesos or dollar-

SHANGHAI, CHINA.* Mar. 13.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelubu Mg. & Trad....	China.....	45,000	$5	$5	Oct., 1894..	$0.25	Taels 5.29
Punjom Mg., Ltd. ...	"	60,000	8	5	.....	.....	" 4.38
do. pref	"	30,000	1	1	.....	.....	" 1.17
Sanb A'lian G. Mg...	"	200,000	$1	14s. 10d.	July, 1898.	.51	" 43.80
Sheridan Con. M.& M.	Colorado, U.S	20,000	Taels 100	Taels 100	.....	.....	" 4 00

*Special report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

STOCK QUOTATIONS.

LONDON.

April 6.

NAME OF COMPANY.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4.8	Feb., 1899	1 0 0	1 5 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 7 6	4 12 6
Anaconda, c., s	Montana	6,000,000	5 0 0	5 1½	May, 1899	9 0 0	9 2 6
Cariboo, g f, pref	BritishCol'mbia	160,000	1 0 0			10 0	15 0
Chiapas, g., s., c	Mexico	252,500	1 0 0			5 0	7 0
Con. Gold Fields	"	300,000	1 0 0			1 5 0	1 7 6
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1898	4 0	5 0
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	3	3 9
Golden Gate, g	California	80,000	1 0 0			1 3	3 9
§Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Mar., 1899	1 3 9	1 6 3
Hall Mines, c., s	British Col	250,000	1 0 0	1 0	May, 1898	10 0	12 6
Le Roi, g	"	1,000,000	5 0 0			5 3 9	5 16 3
Lillooet, F. R. & Car., g	Colorado	1,250,000	1 0 0	2½	Apr., 1899	1 3 9	1 6 3
Lillooet, F. R. & Car., g	British Col	300,000	1 0 0			5 0	10 0
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	7 9	8 3
Mountain Copper	California	1,250,000	5 0 0	2 6	Sept., 1898	7 0 0	7 3 0
Newfoundland, c	Newfoundland	250,000				1 0 0	1 5 0
Palmarejo & Mexican, g., s	Mexico	80,000	1 0 0			3 6	4 0
Plumas-Eureka, g	California	261,250	2 0 0	0 6	Oct., 1896	2 6	3 6
Richmond, g., s	Nevada	270,000	1 0 0	1 0	Dec., "	5 0	7 6
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	1 0	2 0
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Jan., 1899	7 6	10 0
Copiapo, c	Chile	200,000	2 0 0	2 6	Apr., 1899	3 5 0	3 7 6
§rontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Mar., 1899	2 3 9	2 6 3
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	Jan., 1899	1 8 0	1 9 0
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	July, 1897	1 5 0	1 7 6
Tolima B., s., g	"	30,000	5 0 0	5 0	"	1 5 0	1 5 0
UtahCon., g(Highl'ndBoy)	Utah	300,000	1 0 0	rts.	Mar., 1898	9 0 0	9 17 0
Ymir, g	BritishCol'mbia	200,000	1 0 0			1 0 0	1 2 6
British Am. Corp.	"	1,500,000	1 0 0	rts.	Dec., 1899	19 6	1 0 0
§Linares, l	Spain	45,000	3 0 0	12 6	Mar., 1899	1 15 0	2 5 0
Mason & Barry, c., sul	Portugal	630,000	2 0 0	xcap	Oct., 1898	3 16 3	3 18 9
Rio Tinto, c	Spain	1,625,000	5 0 0	£1	Nov., 1898	41 7 6	41 10 0
" " pref	"	1,625,000	5 0 0	2 6	May, 1898	6 3 9	6 6 3
Tharsis, c	"	1,350,000	2 0 0	10 0	" 1898	8 8 9	8 11 3
Assoc. Gold Mines	W. Australia	500,000	1 0 0	2 0	Feb., 1899	6 7 6	6 10 0
Broken Hill Prop., s	N.S.Wales	384,000	8 0	1 0	Apr., 1899	2 2 6	2 5 0
Great Boulder, Prop.	W. Australia	1,750,000	1 0	2 0	Feb., 1899	1 6 9	1 7 3
Hannan's Brownhill, g	"	110,000	1 0 0	7 6	May, 1899	8 7 6	8 10 0
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Apr., 1899	9 10 0	9 12 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	7 17 6	8 0 0
Lake View Consols, g	"	250,000	1 0 0	5 0	Mar., 1899	13 2 6	13 17 6
Mt Lyell M. & R., l., c	Tasmania	975,000	3 0 0	2 6	Apr., 1899	7 17 6	8 2 6
Mt Morgan, g	Queensland	1,000,000	1 0 0	1 0	Apr., 1899	5 5 0	5 7 6
Waihi g	New Zealand	320,000	1 0 0	2 0	Mar., 1899	5 17 6	6 0 0
West Aust. Jt. Stk. L. & F	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	7 6	8 0
Champion Reef, g	Colar Fields	220,000	10 0	4	Jan., 1899	4 18 9	5 1 3
§Mysore Gold, g	"	250,000	10 0	5 6	Mar., 1899	5 6 3	5 8 9
§Mundydrog, g	"	242,000	1 0 0	1 6	" 1899	3 2 6	3 5 0
Goreham, g	"	145,000	1 0 0	1 6	Apr., 1898	3 12 6	3 15 0
" pref. g	"	120,000	1 0 0	1 6	" 1898	4 2 6	4 7 6
§Angelo, g	Transvaal	275,000	1 0 0	5 0	Mar., 1899	7 8 9	7 11 3
Bonanza, g	"	200,000	1 0 0	10 0	Dec., 1898	4 2 6	4 15 0
British S. Af., chartered	So. Africa	3,750,000	1 0 0	rts.	Jan., 1899	3 16 3	3 17 6
Cape Copper, c	"	600,000	1 0 0	7 0	Jan., 1899	4 1 3	4 4 9
" pref	"	150,000	2 0 0	7 0	" 1899	4 6 3	4 8 9
City & Suburban (New), g	Transvaal	1,200,000	4 0 0	6 0	Mar., 1899	6 5 0	6 7 6
Con Deep Level, g	"	200,000	1 0 0	xb.	Apr., 1898	3 17 6	4 0 0
Crown Reef, g	"	120,000	1 0 0	10 0	May, 1899	18 10 0	9 0 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Mar., 1899	27 0 0	27 5 0
§Durban Roodepoort, g	Transvaal	135,000	1 0 0	5	Mar., 1899	6 7 6	6 10 6
Ferreira, g	"	90,000	1 0 0	30 0	Feb., 1899	23 15 0	24 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	9 0	Feb., 1899	14 15 0	11 0 0
Geldenhuis Est, g	"	200,000	1 0 0	7 6	" 1899	8 8 9	8 11 3
Ginsberg, g	"	160,000	1 0 0	4 0	Feb., 1899	3 12 6	3 15 0
Henry Nourse, g	"	125,000	1 0 0	10 0	Feb., 1899	9 13 9	9 16 3
Heriot (New), g	"	115,000	1 0 0	5 0	May, 1899	7 6 3	7 8 9
§agersfontein, d	Orange Fr. St.	1,100,000	5 0 0	2 6	Mar., 1899	13 12 6	13 15 0
Johannesburg Con. Invst	So. Africa	2,750,000	1 0 0	2 0	May, 1899	1 18 9	2 1 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	May, 1899	7 10 0	7 15 0
Jumpers, g	"	100,000	1 0 0	10 0	Feb., 1899	6 16 3	6 18 9
§Kleinfontein, g	"	275,000	1 0 0	1 0	Mar., 1899	3 1 3	3 3 9
§anglaagte Estate, g	"	500,000	1 0 0	3 0	Mar., 1899	3 15 0	3 17 6
Moy Con., g	"	275,000	1 0 0	3 0	Feb., 1899	5 8 9	5 11 3
Meyer & Charlton, g	"	85,000	1 0 0	7 0	Jan., 1899	6 13 9	6 16 3
Namaqua, c	Cape Colony	200,000	1 0 0	2 6	Dec., 1898	3 1 3	3 12 6
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Feb., 1899	5 0 0	5 2 6
Rand Mines, g	So. Africa	400,000	1 0 0	£1	Feb., 1899	12 7 6	42 10 0
Robinson, g	Transvaal	2,750,000	1 0 0	9 0	" 1899	0 17 6	11 0 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 10 0	1 12 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	3 6	Jan., 1899	6 3 9	6 6 3
Wemmer, g	"	80,000	1 0 0	18 0	Jan., 1899	13 5 0	13 10 0
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	6 13 9	6 16 3
Worcester, g	"	100,000	1 0 0	3 0	Feb., 1899	3 5 0	3 10 0

§ Ex-Dividend.

PARIS.

March 30

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	2,165.00	2,140.00
" " Firminy	"	"	4,000,000	500	85.00	3,700.00	3,700.00
" " Fives-Lille	"	"	12,000,000	500	35.00	615.00	605.00
" " Huta-Bank	Russia	Iron & steel		500		4,460.00	4,500.00
" " la Marine	France	Steel mfrs	30,000,000	500	40.00	1,684.00	1,675.00
" " Longwy	"	"		500	35.00	1,195.00	1,160.00
Anzin	"	Coal			190.00	5,445.00	5,425.00
Blache-St. Vaast	"	Steel		1,000	160.00	3,800.00	3,800.00
Boleo	Lower Cal	Copper		500	93.50	2,340.00	2,367.00
Brianak	Russia	Coal & Iron		500		1,370.00	1,366.00
Bruay	France	Coal	3,000,000	400	900.00	39,000.00	38,800.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	101.50	101.00
Champ d'Or	"	Gold	3,375,000	25		63.00	61.50
Courrieres	France	Coal	600,000	500	60.00	2,180.00	2,180.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	711.00	705.00
Denain-Anzin	France	Steel		500	30.00	950.00	939.00
Dombrowa	Russia	Coal		500	12.50	1,180.00	1,180.00
Donetz	"	Steel				1,225.00	1,225.00
Dourges	"	Coal		1,000	900.00	20,800.00	20,800.00
Dynamite Centrale	France	Explosives		500	12.50	531.00	530.00
Epinac	"	Coal		2,500	20.83	590.00	590.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,185.00	1,165.00
Fraser River	"	Gold	250,000	25		8.00	8.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	57.50	57.50
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	94.00	93.00
Laguna	Chile	Nitrates	16,250,000	125	12.50	37.00	37.00
Laurium	Greece	Zinc & lead	16,800,000	500	30.00	620.00	610.00
Lautaro	Chile	Nitrates	13,750,000	125		109.00	111.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,245.00	1,240.00
Metaux, Cie. Fran. de	France	Metal d'lers	25,000,000	500	30.00	656.00	651.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,180.00	1,185.00
Napthe Baku	Russia	Petroleum				9.60.00	872.00
Napthe, Le	"	"				2,500.00	2,500.00
Napthe Nobel parts	"	"				652.50	652.00
Nickel	N. Cal'd'nia	Nickel	10,000,000	250	30.00	430.00	419.00
Paccha-Jazpampa	Chile	Nitrates	9,000,000	125		12.50	12.50
Penarroya	Spain	Coal, etc		500	65.00	2,680.00	2,500.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		6.50	6.50
Rio Tinto	Spain	Copper	40,625,000	125	47.70	1,075.00	1,020.00
" " preferred	"	"	40,625,000	125		157.00	157.50
Rive-de-Gier	France	Coal				22.75	24.25
Robinson	S. Africa	Gold	68,750,000	125	12.50	280.00	276.00
St. Etienne	France	Coal			18.00	473.00	470.00
Salines de l'Est	France	Salt		500	11.50	273.00	273.00
Salines du Midi	France	" etc		500	20.00	865.00	870.00
Sels Gem. de la Rus. Mer	Russia	" etc		500	25.00	640.00	640.00
Tharsis	Spain	Copper	33,750,000	50	8.75	221.00	223.00
Vicoigne-Neux	France	Coal		1,000	700.00	23,000.00	22,700.00
Vieille Montagne	Belgium	Zinc	9,000,000	80	30.00	787.50	795.00

MEETINGS.

NAME OF COMPANY.	Location	Meeting.	Date.	Place of Meeting.
Alamo	Utah	Annual	May 20,	Salt Lake City, Utah.
Allouez	Michig'n	Special	Apr. 26,	60 State st., Boston, Mass.
Anaconda	Montana	Annual	May 19	Anaconda, Mont
Anchoria Leland	Colorado	"	May 14	Colorado Springs, Colo.
Annie	Utah	"	May 5	Salt Lake City, Utah.
Basin & Bay State	Montana	"	May 27	Basin, Mont
Boston Tintic	Utah	"	May 1	Salt Lake City, Utah.
Boston & Montana	Utah	"	Apr. 27,	31-33 Fulton st., New York City.
Bucseye	So. Dak	"	May 2	Deadwood, South Dakota
Bunker Hill & Sull.	Idaho	"	June 17,	Crocker Bldg., San Francisco, Cal.
Cadmus	California	Special.	May 31	58 Geary st., San Francisco, Cal.
Church	California	Annual.	May 6	San Francisco, Cal.
Col'b. & H. C. & I.	Ohio	"	May 17	Columbus, Ohio.
Constellation	Utah	"	May 2	Park City, Utah.
Crown Point	Nevada	"	June 7	Mills Building San Francisco, Cal.
Goleta	California	"	May 18	431 Pine st., San Francisco, Cal.
Helena & Idaho	Idaho	"	June 10	Helena, Mont.
Homestake	Utah	"	May 6	Salt Lake City, Utah.
Justice	Nevada	"	May 6,	309 Montgomery st, San Francisco, Cal.
Morgan	California	"	May 6	230 Montgomery st., San Francisco, Cal.
North Star	California	"	May 11	414 California st., San Francisco, Cal.
Parrot	Montana	"	June 29	Butte, Mont.
Pharmacist	Colorado	"	Apr. 27,	Colorado Springs, Colo.
Quicksilver	California	"	June 9,	20 Nassau st. New York City.
Smuggler Union	Colorado	"	May 7	Denver, Colo.
Sterling	California	"	May 18	331 Pine st., San Francisco, Cal.
Syndicate	California	Special.	May 10	309 Montgomery st., San Francisco, Cal.

DIVIDENDS.

NAME OF COMPANY.	Current dividends. Date.	Current dividends. Am't.	Paid since Jan. 1, 1899.	Total to date.
Alamo, Utah	Apr. 7	$2,500	$2,500	$2,500
Alaska-Mexican			18,000	335,631
Alaska-Treadwell			75,000	3,99,,000
Ætna Con	Apr. 1	10,000	20,000	170,000
†American Gold			21,000	407,000
Anaconda Copper	May 3	1,500,000	1,500,000	9,750,000
Anchoria-Leland	Apr 15	18,0 0	36,000	198,000
Apollo Con., Alas			4 000	140,000
†Argonaut, Col	Apr 29	20,000	80,000	260,000
†Bald, Butte			30,000	679,648
†Boston & Cal			36,000	36,000
Boston & Colo. Sm	Apr. 3	75 000	150,000	375,000
Boston & Mont			750,000	9,875,000
†Breece			10,000	40,000
†Bul. Bec. & Champ	Apr. 15	10,0 0	40 000	2,358,400
†Bunker Hill & S	Apr. 4	21,000	84 000	684,000
†Calumet & Hecla			4,000,000	60,850 000
Cariboo			12 000	248,935
†Centenn'l Eureka	Apr 15	15,000	60,000	2,090,000
†Central Lead			15,000	97,000
Colorado Sm			100,000	1,945,000
Deer Trail No. 2, Wash	Apr. 15	2,500	10,000	27,500
†Doe Run			7,500	67,500
†Empire State, Ida	Apr 15	20,000	64,331	126,233
†Ferris-Haggerty, Wyo			5,000	5,000
Germania Lead			3,750	
†Gold Coin, Vict			30,000	180,000
†Golden Cycle	Apr 15	5,000	20,000	173,500
Gold King, Col			10,000	10,000
Golden M. & Ex			10,000	10,000
†Grand Central, Ut	Apr. 10	37,500	147,500	456,250
Grass Valley Ex			7 500	
†Gwin, Cal	Apr. 10	5,000	10,000	61,500
†Highland	Apr 15	20,000	80,000	3,864,718
†Holy Terror			5,000	122,000
†Homestake	Apr. 25	62,5 0	250,000	7,431,250
†Horn Silver			20,000	5,250,000
Idaho, B. C			28,000	292,000
Isabella			135,000	405,000
†Jack Pot				
Jamison, Cal	Apr 15	$11,700	11,70	35,100
Lake Superior Ir				
†Lillie	Apr. 1	12,500	50,000	215,360
†Mead, Cal			20,000	100,000
Mercur			25,000	1,266,000
†Modoc	Apr 25	10,0 0	40,000	120,000
†Montana, Ltd	Apr. 7	78 855	28,855	453,700
†Mont. Ore Pur	Apr 20	89,000	240,000	1,040,000
†Morning Star, Cal	Apr. 5	6,000	32,40	720,690
Moulton, Mont			20,000	480 000
Napa Con	Apr. 1	20,000	40,000	200,000
New Idria	Apr. 1	20,000	40,000	120,000
†N.Y.& H.-Rosario	Apr. 20	15,0 0	45,000	1,035 000
North Star, Cal	Apr. 13	50,000	50,000	550,000
†Parrot			207,000	2,345,898
†Pennsylvania			7,725	59,375
†Royal B. C			25,000	1,025,000
Pioneer, Cal			12 500	62 500
Plumbago, Cal			45 000	45,000
Portland	Apr 15	60,000	240,000	2,077,080
Quicksilver (Pref.)	May 5	21,500	21,500	1,845,411
Quincy			350,000	10,470,000
Rambler Cariboo	Apr. 1	10,000	10,000	50,000
§Republic, Wash	Apr 15	35 000	35,000	35,000
*Sacramento	Apr. 1	5,000	20 000	77,000
†St. Joseph Lead			37,500	2,822,000
†Silver King	Apr. 19	54,000	175,000	1,925,000
Small Hopes			25,000	3,325,000
Smuggler			10,000	1,105 000
South Swansea			7,500	112,400
Standard, Ida	Apr. 7	30,000	30,000	1,745,000
†Strong	Apr 15	25,000	100,000	625,000
†Swansea	Apr. 10	5,000	20,000	156,500
Utah, Utah			2,000	179,000
Vindicator	Apr 20	25,375	75 125	203,000
†War Eagle, B. C	Apr 15	26,250	105 000	282,750
Wolverine	Apr. 1	90 000	90,000	150,000
Yellow Aster			10,000	168,783
Grand Total			$2,511,180	$10,491,886	151.797,518

†March dividend paid. §Paid by new company.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No.	Delinq.	Sale.	Amt.
Best & Belcher	Nev	66	April 16	May 2	.05
Bullion	Nev	54	May 9	May 29	.05
Confidence	Nev	32	May 9	May 29	.20
Dalton	Utah		April 10	May 1	.01
Eureka Con. D	Cal	17	April 17	April 28	.00½
*Geyser	Colo		April 15		.10
Gold Eagle	Nev.		April 15	May 16	.01
*Hale & Norcross	Nev	2	May 15	June 5	.10
Head Center Con	Ariz		May 2		.20
*La Suerte	Cal		May 9		.02½
Montreal	Utah		April 10	May 16	.05
National	Cal		May 8		.10
Occidental	Nev	32	April 10	May 1	.10
Ophir	Nev	74	April 10	May 1	.15
Snowflake	Utah	12	April 7	April 28	.02
Success	Utah	4	April 20	May 13	.00¼
Tetro	Utah	7	April 20	May 15	.01
Texas	Cal	1	May 15	May 30	.15
Utah Con	Nev	31	May 10	May 29	.05
Watt Blue Gravel	Cal		May 1		.03
Yankee Girl	Utah		April 15	May 17	.02
Yellow Jacket	Nev	1	April 11	May 17	.15

*New Assessment.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Etna Cons., q	Cal	$500,000	100,000	$5	*				$170,000	April	1899	.10
2	Alaska-Mexican, g	Alask	1,000,000	200,000	5					335,031	Jan	1899	.10
3	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				3,995,000	Jan	1899	.37½
4	Alice, g, s	Mont.	10,000,000	400,000	25	*				1,075,000	April	1898	.05
5	American Gold, g, s, c	Colo.	3,000,000	300,000	10	*				407,000	Mar	1899	.07
6	Anaconda Copper	Mont.	30,000,000	1,200,000	25					9,750,000	May	1899	1.25
7	Anchoria-Leland, g	Colo.	600,000	600,000	1	*				198,000	April	1899	.03
8	Appie Ellen, g	Colo.	1,250,000	1,250,000	1	*				25,000	Aug	1898	.01
9	Associated, g	Mich.	1,000,000	40,000	25					72,000	Dec	1898	.01
10	Atlantic, c	Mich.	2,500,000	100,000	25	*				780,000	Feb	1898	1.00
11	Aurora, l	Mich.	250,000	250,000	1	*				750,000	May	1898	.50
12	Bald Butte	Mont.	500,000	500,000	1					672,648	Mar	1899	.06
13	Big Six, g, s	Colo.	600,000	600,000	1					15,000	May	1898	.00½
14	Boston & California	Cal	600,000	600,000	1					36,000	Mar	1899	.06
15	Boston & Colorado Sm.	Colo.	750,000	15,000	50					375,000	April	1899	5.00
16	Boston & M. Cons., g, s, c	Mont.	3,750,000	150,000	25	*				9,875,000	Feb	1899	5.00
17	Breese, i	Colo.	5,000,000	200,000	25					40,000	Mar	1899	.05
18	Bullion-Beck & Champ	Utah	1,000,000	100,000	10	*				2,348,400	Mar	1899	.10
19	Bunker Hill & S., s, l	Idaho	3,000,000	300,000	10					644,000	April	1899	.07
20	Calumet & Hecla, c	Mich.	2,500,000	100,000	25					60,850,000	Mar	1899	10.00
21	Cariboo, g	B. C.	800,000	800,000	1					248,965	Feb	1899	.01½
22	Centen l-Eureka, g, s, l, c	Utah	1,500,000	30,000	50	30,000	Mar	1889	1.00	2,090,000	April	1899	.50
23	Central Lead, l	Mo.	1,000,000	10,000	100	*				102,000	April	1899	.50
24	Champion, g, s	Cal	340,000	34,000	10					296,200	April	1898	.25
25	Charleston, p, r	S. C.	1,000,000	10,000	100	*				180,000	Dec	1898	1.50
26	Colorado, Sm., g, s, c	Mont.	1,000,000	100,000	10	*				1,945,000	Jan	1899	1.00
27	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec	1898	.02
28	Creston Leasing	Colo.	1,000,000	1,000,000	1					54,000	Dec	1898	.01
29	Crowned King, g, s, l	Ariz	6,000,000	600,000	10	*				232,000	Dec	1898	.02
30	Daly, s, l	Utah	3,000,000	150,000	20					2,925,000	Mar	1897	.25
31	Deadwood-Terra, g	S. D.	5,000,000	200,000	25	*				1,350,000	May	1898	.15
32	De Lamar, g, s	Idaho	2,000,000	400,000	5					3,398,000	May	1898	.29
33	Della S	Colo.	1,000,000	1,000,000	1					60,000	Jan	1897	.10
34	Doe Run, l	Mo.	500,000	5,000	100					70,000	April	1899	.50
35	Dutch, g	Cal	1,500,000	150,000	10					39,000	Feb	1898	.04½
36	Elkton Cons., g	Colo.	1,250,000	1,250,000	1					656,961	Nov	1898	.01½
37	El Paso, g, s	Colo.	650,000	650,000	1					12,393	Jan	1898	.01
38	Enterprise, s, l	Colo.	500,000	500,000	1					900,000	Sept	1898	.05
39	Empire State-Idaho	Idaho	1,000,000	100,000	10					126,233	April	1899	.20
40	Ferris-Haggarty, c, g, s	Wyo.	1,000,000	1,000,000	1					5,000	Mar	1899	.00½
41	Fern	B.C.	200,000	200,000	1					10,000	Jan	1898	.05
42	Florence, s	Mont.	2,500,000	500,000	5	*				137,530	Aug	1897	.01
43	Geyser-Marion, g	Utah	1,500,000	300,000	5					96,000	Sept	1898	.02
44	Gold Coin, g, s	Colo.	1,000,000	200,000	5	*				160,000	Nov	1897	.05
45	Gold Coin of Victor, g	Colo.	1,000,000	1,000,000	1					180,000	Mar	1899	.01
46	Golden Cycle, g	Colo.	1,000,000	200,000	5					168,500	Mar	1899	.02½
47	Golden Fleece, g, s	Colo.	600,000	600,000	1	*				569,179	Feb	1897	.01
48	Gold & Globe, g	Colo.	750,000	750,000	1					51,625	July	1897	.00⅞
49	Gold King, g	Colo.	1,000,000	1,000,000	1					10,000	Feb	1899	.01
50	Golden Reward, g	S. D.	1,000,000	100,000	10					155,000	Feb	1898	.15
51	Grand Central, g	Utah	250,000	250,000	1					318,750	Mar	1899	.15
52	Gwin, g	Cal	1,000,000	20,000	50	286,000	Jan	1898		54,500	Mar	1899	.25
53	Hall Mines, Ltd	B. C.	1,250,000	250,000	5					160,000	May	1898	.25
54	Hecla Cons., g, s, c, l	Mont.	1,500,000	30,000	50	*				2,175,000	Feb	1897	.50
55	Highland, g	S. D.	10,000,000	100,000	100	304,000				3,864,718	April	1899	.20
56	Holy Terror, g	S. D.	500,000	500 000	1					122,000	Mar	1899	.01
57	Homestake, g	S. D.	12,500,000	125,000	100	200,000	July	1878	1.00	7,398,750	Mar	1899	.50
58	Hope of St. Louis, s	Mont.	1,000,000	100,000	10	*				762,253	Mar	1898	.10
59	Horn Silver, g, s, c, sp, l	Utah	10,000,000	400,000	25	*				5,250,000	Mar	1899	.05
60	Idaho	B.C.	500,000	500,000	1					292,000	Jan	1899	.05⅓
61	Iowa, g	Colo.	1,000,000	1,000,000	1					95,000	June	1898	.00½
62	Iron Mountain, g, s, l, i	Mont.	5,000,000	500,000	10	*				507,500	April	1898	.02
63	Isabella, g	Colo.	2,250,000	2,250,000	1					405,000	Feb	1899	.06
64	Jack Pot, g	Colo.	1,000,000	1,000,000	1					25,000	Mar	1899	.02½
65	Jersey Leasing	Colo.	200,000	158,167	1					137,875	Oct	1898	.03½
66	Lake Superior Iron	Mich.	2,100,000	84,000	25					736,000	Feb	1899	1.00
67	Last Chance, s, l	B. C.	500,000	350,000	1	*				40,000	Jan	1897	.04
68	Le Roi	B. C.	5,000,000	2 80,000	25					825,000	April	1898	.10
69	Lillie, g	Colo.	1,250,000	250000	5					215,360	April	1899	.05
70	Mammoth, g, s, c	Utah	10,000,000	400,000	25	*				1,350,000	Dec	1898	.05
71	Matos, g	Colo.	1,000,000	1,000,000	1					25,000	Dec	1898	.02½
72	Mead, g	Cal	200,000	200,000	1					100,000	Mar	1899	.20
73	Mercur, g	Utah	5,000,000	200,000	25	*				1,266,000	Jan	1899	12½
74	Minnesota Iron, i	Minn.	16,500,000	165,000	100	*				4,735,000	Oct	1898	1.50
75	Modoc, g	Colo.	500,000	500,000	1					110,000	Mar	1899	.02
76	Montana, Ltd., g, s	Mont.	3,300,000	657,128	5	*				453,700	April	1899	.12
77	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*				1,040,000	April	1899	1.00
78	Montreal	Colo.	1,000,000	1,000,000	1					7,500	Nov	1898	.01
79	Moon-Anchor Con,, g	Colo.	1,750,000	600,000	1					261,000	Nov	1898	.07½
80	Morning Star, g	Cal	240,000	2,400	100	70,800	Feb	1885	.75	720,650	April	1899	2.50
81	Monument	Colo.	300,000	300,000	1					12,624	Dec	1898	.01
82	Mt. Rosa, g	Colo.	1,000,000	1,000,000	1					60,000	Jan	1898	.02
83	Moulton	M nt.	2,000,000	400,000	5					480,00	Feb	1899	.05
84	Mountain Copper	Cal	6,250,000	250,000	25					93,750	Sept	1898	.62½
85	Napa Cons., q	Cal	700,000	100,000	7	*				990,000	April	1899	.20
86	New Idria, q	Cal	500,000	100,000	5					120,000	April	1899	.20
87	N.Y. & Hon Rosario, s, g	C. A.	1,500,000	150,000	10	*				1,035,000	April	1899	.10
88	North Star, g	Cal	2,000,000	200,000	10	20,000	June	1885	.02	560,000	Nov	1898	.25
89	Nugget	Colo.	1,000,000	1,000,000	1					20,000	Aug	1898	.00½
90	Ontario, s, l	Utah	15,000,000	150,000	100					13,557,500	Nov	1897	.75
91	Orphan Bell, g	Colo.	1,000,000	1000000	1					115,000	Mar	1898	.01
92	Ophir Hill	Utah	25,000	1,000	25					20,000	Dec	1898	20.00
93	Osceola, c	Mich.	2,500,000	93,000	25	*				2,522,500	Dec	1898	2.00
94	Parrot, c	Mont.	2,300,000	230,000	10	*				2,345,898	Mar	1899	.30
95	Pennsylvania Cons	Cal	5,150,000	51,500	100	50,051	Feb	1892	.05	61,95	April	1899	.05
96	Pioneer g	Cal	1,000,000	100,000	10					62,500	Mar	1899	.12½
97	Plumbago, g	Cal	300,000	300,000	1					45,000	Jan	1899	.15
98	Portland, g	Colo.	3,000,000	3,000,000	1	*				2,017,080	Mar	1899	.02
99	Princess, g	Colo.	1,000,000	1,000,000	1					45,000	Feb	1897	.00½
100	Quincy, c	Mich.	2,500,000	100,000	25	*				10,470,000	Feb	1899	3.50
101	Rambler-Cariboo	B.C.	1,000,000	1,000,000	1					50,000	April	1899	.01
102	Raven, g	Colo.	1,500,000	1,500,000	1					19,500	Mar	1898	.01
103	Reco, s, l	B. C.	1,000,000	1,000,000	1					297,500	Jan	1898	.10
104	Republic Cons., g	Wash	3,000,000	3 000,000	1					35,000	April	1899	.01
105	Royal Con., g	B. C.	2,500,000	2,500,000	1					25, 000	Mar	1899	.01
106	Sacramento, g	Utah	5,000,000	1,000,000	5					77,000	April	1899	.00½
107	St. Joseph, l	Mo.	3,000,000	300,000	10	*				2,822,000	Mar	1899	1.50
108	Santa Rosalia, g, s	Cal	100,000	100,000	1					125,000	Feb	1898	.10
109	Silver King, g, s, l	Utah	3,000,000	150,000	20	3,000	Jan	1897	.02	1,875,000	Mar	1899	.25
110	Slocan Star	B.C.	1,000,000	2,000,000	0.50					400,000	Mar	1897	.05
111	Small Hopes, s	Colo.	5,000,000	250,000	20	*				3,325,000	Feb	1898	.10
112	Smuggler, s, l, z	Colo.	1,000,000	1,000,000	1					1,105,000	Jan	1899	.01
113	South Swansea, s, l	Utah	150,000	150,000	1					112,460	Mar	1899	.05
114	Standard Cons., g, s	Cal	2,000,000	200,000	10	99,888	June	1890	.50	3,893,236	Aug	1898	.10
115	Swansea, s, l	Utah	500,000	100,000	5					156,500	Mar	1899	.05
116	Tamarack, c	Mich	1,500,000	60,000	25					5,370,000	Dec	1898	4.00
117	Tomboy, g	Colo.	2,000,000	200,000	10	*				650,000	Dec	1898	.25
118	Utah	Utah	1,000,000	100,000	10	*				179,000	Jan	1899	.02
119	Victor, g	Colo.	1,000,000	200,000	5	*				1,155,000	Dec	1898	.50
120	Vindicator, Cons, g	Colo.	1,500,000	1,015,000	1					177,625	Jan	1899	.05
121	War Eagle, Cons	B.C.	2,000,000	1,750,000	1					282,750	April	1899	.01½
122	Western Mine Enterp	Mont.	500,000	500,000	1	*				48,680	Jan	1898	.20
123	Whitewater	B.C.	625,000	125,000	5					194,000	April	1898	.32
124	Wolverine, c	Mich.	1,500,000	60,000	25	180,000	Mar	1895	1.00	150,000	April	1899	1.50
125	Yellow Aster, g	Cal	1,000,000	100,000	10	*				168,789	Jan	1899	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s, l	Utah	$100,000	100,000	$1	$3,333	Nov	1895	.01½
2	Alamo, g, c, i	Utah	125,000	125,000	1	937	Mar	1898	.00¼
3	Alliance, g, s, l	Utah	150,000	150,000	1	200,000	Dec	1895	.10
4	Allouez, c	Mich.	2,000,000	80,000	25	1,520,937	June	1894	1.00
5	Alpha Cons., g, s	Nev	105,000	105,000	1	316,050	Nov	1898	.03
6	Alta, s	Nev	216,000	108,000	2	3,670,310	Mar	1899	.05
7	American Quartz, g	Cal	1,000,000	100,000	10	1,000	Feb	1897	.01
8	Anchor, g, s, l	Utah	1,500,000	150,000	10	560,000	Aug	1893	.20
9	Andes, g	Nev	300,000	100,000	3	1,200,000	Jan	1899	.05
10	Arnold, c	Mich.	1,500,000	60,000	25	180,000	Jan	1899	3.00
11	Baliol, g	Cal	1,000,000	100,000	10	55,000	Mar	1898	.30
12	Belcher, s, g	Nev	312,000	104,000	3	3,525,200	Mar	1899	.10
13	Belle Isle	Nev	10,000,000	100,000	100	240,271	July	1896	.10
14	Benton Con, s	Nev	10,800,000	108,000	100	587,023	June	1897	.25
15	Best & Belcher, g, s	Nev	302,400	100,800	3	2,599,723	April	1899	.10
16	Bogan	Utah	1,250,000	125,000	10	26,875	Dec	1897	.01½
17	Boston & Cp. Ck., g	Colo.	400,000	200,000	2	20,000	Aug	1898	.10
18	Brunswick Cons., g	Cal	500,000	500,000	1	160,000	July	1897	.03
19	Bullion, s, g	Nev	100,000	100,000	1	3,125,000	May	1899	.05
20	Caledonia	Nev	300,000	200,000	3	3,210,000	Nov	1897	.10
21	Centennial, c	Mich.	2,500,000	100,000	25	460,000	Mar	1898	3.00
22	Central Eureka, g	Cal	4,000,000	400,000	10	92,000	Mar	1899	.02
23	Challenge Cons, s, g	Nev	150,000	50,000	3	430,000	Mar	1899	.05
24	Choliar, g, s	Nev	336,000	112,000	3	2,059 800	Jan	1899	.10
25	Confidence, g, s	Nev	74,880	24,960	3	545,118	May	1899	.20
26	Con., Cal. & Va	Nev	540,000	216,000	2½	678,000	July	1898	.25
27	Cons. Imperial, g, s	Nev	500,000	500,000	1	2,246,000	Nov	1898	.01
28	Con. New York	Nev	100,000	100,000	1	160,500	Nov	1898	.03
29	Crown Point, g, s	Nev	300,000	100,000	3	2,970,000	Nov	1898	.10
30	Dalton, s, l	Utah	2,500,000	500,000	5	58,750	April	1899	.01
31	Dexter	Nev	1,000,000	200,000	5	38,(00	Apr	1898	.15
32	Diamond Con	Utah	1,000,000	200,000	5	8,000	Mar	1899	.04
33	Eagle, g, s	Cal	500,000	100,000	5	5,000	Dec	1896	.05
34	Eagle, g, s	Ore	1,000,000	100,000	10	6,000	Oct	1898	.01½
35	Emerald	Utah	300,000	300,000	1	3,000	Oct	1898	.00⅓
36	Eureka Cons., g, s, l	Nev	1,000,000	50,000	20	585,000	Sept	1898	.20
37	Eureka Con. Drift, g	Cal	500,000	500,000	1	175,000	Feb	1899	.00½
38	Exchequer, g, s	Nev	1,000,000	100,000	1	1,020,000	Dec	1897	.05
39	Florence	Utah	1,000,000	200,000	5	500	Mar	1899	.00¼
40	Four Aces	Utah	250,000	250,000	1	5,000	Mar	1898	.01
41	Galena	Utah	1,000,000	100,000	10	10,000	Oct	1898	.10
42	Geyser, s, l	Colo.	5,000,000	500,000	10	1,125,000	Jan	1899	.10
43	Gold Belt, g, s	Utah	500,000	500,000	1	3,012	July	1896	.00½
44	Golden Fleece Grav, g	Cal	130,000	130	1000	56,260	Mar	1897	2.00
45	Gold & Silver Carb	Utah	500,000	500,000	1	2,500	Mar	1899	.00½
46	Gould & Curry	Nev	324,000	108,000	5	4,614,350	Dec	1898	.10
47	Great Eastern, g	Utah	1,500,000	300,000	5	5,000	Oct	1898	.00½
48	Great Western, q	Cal	5,000,000	50,000	100	70,526	Mar	1899	.15
49	Hale & Norcross, g, s	Nev	11,200,000	112,000	100	5,705,080	Feb	1899	.15
50	Horse Shoe Bar Cons	Cal	6,000,000	60,000	100	85,800	Jan	1899	.05
51	Julia Con	Nev	110,000	110,000	1	1,498,800	Jan	1899	.03
52	Jupiter, g	Cal	2,000,000	20,000	100	80,000	Feb	1898	.20
53	Justice, g, s, c	Nev	210,000	105,000	2	3,652,000	Feb	1899	.05
54	Kentuck	Utah	600,000	300,000	2	30,000	Aug	1898	.10
55	Kentuck Cons., s	Nev	105,000	105,000	1	125,300	June	1898	.05
56	Lacrosse, g	Colo.	1,000,000	100,000	10	*			
57	Little Pittsburg	Utah	2,000,000	400,000	5	18,000	Dec	1898	.01
58	Lower Mammoth	Utah	150,000	150,000	1	15,000	Oct	1898	.05
59	Lucky Bill	Utah	300,000	120,000	2.50	56,400	June	1898	.01½
60	Marguerite, g	Cal	500,000	50,000	10	75,000	Feb	1899	.10
61	May Day	Utah	100,000	400,000	¼	4,000	Jan	1899	.00¼
62	Mayday, g, s	Cal	100,000	50,000	1	5,000	May	1898	.10
63	Mayflower, g	Cal	1,200,000	60,000	20	6,000	Sept	1898	.05
64	Merced, g	Cal	1,500,000	100,000	15	200,000	July	1896	2.00
65	Meteor, s, l	Utah	600,000	300,000	2	6,734	Feb	1899	.01
66	Mexican, g, s	Nev	302,400	100,800	3	2,258,720	Nov	1898	.10
67	Montreal	Utah	2,500,000	250,000	10	18,125	Jan	1899	.05
68	Mt. Diablo s	Nev	5,000,000	50,000	100	150,000	Dec	1898	.10
69	Morning Star, s	Nev	1,500,000	150,000	10	32,500	Dec	1898	.00½
70	Nashville, g	Cal	115,000	11,500	10	2,000	Sept	1898	.17
71	North Banner, g, s	Cal	1,000,000	100,000	10	21,794	Oct	1896	.02
72	North Belle Isle, s	Nev	10,000,000	100,000	100	523,074	July	1896	.10
73	No. Gould & Curry	Nev	100,000	100,000	1	375,000	Dec	1898	.10
74	Northern Light, g	Utah	2,000,000	400,000	5	80,000	July	1898	.10
75	Occidental Cons g s	Nev	300,000	160,000	3	509,179	April	1899	.10
76	Ophir, g, s	Nev	324,000	108,000	3	4,619,768	April	1899	.15
77	Opohonga	Utah	200,000	100,000	2	1,500	June	1898	.01
78	Oro Cache, g, s	S. D.	1,250,000	250,000	5	6,250	July	1893	.00½
79	Osceola, g	Cal	10,000,000	100,000	100	10,924	Sept	1898	.01
80	Overman, g, s	Nev	230,400	115,200	2	4,135,450	Mar	1899	.05
81	Peer, s	Ariz	10,000,000	100,000	100	215,000	July	1894	.05
82	Peerless, s	Nev	10,000,000	100,000	100	410,000	July	1894	.05
83	Pine Hill, g	Cal	1,000,000	100,000	10	30,000	July	1897	.05
84	Potosi, g, s	Nev	336,000	112,000	3	2,157,200	Dec	1898	.10
85	Quicksilver, pref., q	Cal	4,300,000	43,000	100	*			
86	Quicksilver, com, q	Cal	5,700,000	57,000	100	*			
87	Red Mountain, s	Colo.	300,000	60,000	5	22,500	Mar	1891	.12½
88	Rescue, g	Nev	100,000	10,000	10	5,500	Feb	1899	.05
89	Reward, g	Cal	64,000	64,000	1	63,680	Nov	1898	.02
90	Ridge, c	Mich	500,000	20,000	25	239,939	Feb	1897	1.00
91	St. Mary, c	Mich	1,000,000	40,000	25	4,000	July	1895	.05
92	Savage, g, s	Nev	280,000	112,000	2½	7,309,800	Feb	1899	.10
93	Scorpion, s	Nev	100,000	100,000	1	445,000	Dec	1897	.05
94	Seg. Belcher & Mg s	Nev	200,000	100,000	2	368,000	Nov	1898	.03
95	Sevier, g, s	Utah	1,250,000	250,000	5	50,000	April	1897	.04
96	Shower Con	Utah	2,000,000	400,000	5	8,000	Mar	1899	.02
97	Sierra-Nevada, g, s	Nev	300,000	100,000	3	6,706,910	Feb	1898	.20
98	Silver Age, g, s, l	Colo.	2,000,000	200,000	10	*			
99	Silver Hill, s	Nev	108,000	108,000	1	2,220,200	May	1898	.05
100	Silver King, s	Ariz	10,000,000	100,000	100	465,000	Feb	1899	.25
101	Silver Queen, c	Ariz	5,000,000	200,000	25	*			
102	Silver State, g	Colo.	700,000	700,000	1	*			
103	Silver State, s, g, l	Utah	100,000	100,000	1	1,000	Sept	1897	.00¼
104	Siskiyou Con., s	Cal	2,000,000	200,000	10	46,000	Apr	1898	.01
105	South Fork Con	Utah	50,000	50,000	1	5,000	Mar	1898	.01
106	South Side	Mich.	1,000,000	40,000	25	4,000	Jan	1899	.10
107	Star, g, s	Utah	1,000,000	200,000	5	7,000	Feb	1899	.03
108	Success	Utah	30,000	300,000	0.10	3,000	April	1899	.00¼
109	Sunbeam Cons	Utah	250,000	250,000	1	28,125	Mar	1899	.02
110	Tecumseh, c	Mich.	1,000,000	40,000	25	40,000	July	1897	1.00
111	Temonj, g	Colo.	1,000,000	1,000,000	1				
112	Tetro	Utah	300,000	300,000	1	24,000	April	1899	.01
113	Tombstone, g, s, l	Ariz	12,500,000	500,000	25	*			
114	Tornado Con., g, s	Nev	100,000	100,000	1	*			
115	Union Cons., g, s	Nev	250,000	100,000	2½	2,633,000	Jan	1899	.03
116	Utah Cons., s	Nev	100,000	100,000	1	480,000	May	1899	.05
117	Victory, g, s	S. D.	1,250,000	250,000	5	2,625	Nov	1896	.00½
118	Watt Blue Gravel, g	Cal	1,100,000	100,000	10	58,000	May	1899	.03
119	West Granite Mt., s	Mont.	500,000	100,000	5				
120	Work, g	Colo.	1,250,000	1,250,000	1				
121	World, g	Colo.	1,500,000	1,500,000	1	*			
122	Yellow Jacket, g, s	Nev	360,000	120,000	3	5,305,000	April	1899	.15
123	Yellow Jacket	Utah	300,000	300,000	1	1,500	Dec	1897	.00⅓

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable.

NOTE.—This table is corrected up to April 10. Correspondents are requested to forward changes or additions so as to reach us before the end of each month

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

NOTE.—These quotations are for wholesale lots n New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to April 1st. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls grains	lb.	$0.15
Powdered	"	.10
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best	lg. ton	18.50
Levant, "	"	22.00
Naxos (Greek) best	"	32.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01¼
Lump, per quality	"	.05@.40
Rottenstone, ground	"	.02¼@.03
Lump, according to quality	"	.05@.18
Rouge	"	.17@.30
Tripoli, prepared	sh. ton.	20.00
Acids—Acetic, 30% pure	lb.	.02¾
30% ch. pure	"	.06½
80% pure	"	.09
Glacial, pure	"	.11¾
Chem. pure	"	.21
Benzoic, English	oz.	.06@.06½
German	lb.	.46@.47
Boracic, pure cryst.	"	.10@.10¼
Powdered	"	.10½@.11¼
Carbolic, cryst. in drums	"	.14½@.15½
Carbonic, liquid	"	.15
Chromic, crude	"	.25
Chem. pure	"	.40
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure	"	.08
Hydrofluoric, 30%	"	.03@.04½
48%	"	05@.06
Best	"	.25
Nitric, chem. pure	"	.10
Sulphuric, 98%	"	.02
Chem. pure	"	.07
Tartaric, cryst.	"	.31½@.32
Powder	"	.32@.32½
Alcohol—Grain	gal.	2.42@2.44
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.65
Powdered	"	2.50
Ground	"	1.75
Chrome, com'l	"	3.50
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Chem. pure	"	1.00
Hydrated	"	.04@.05
Sulphate, pure	"	.02
Ammonia—Aqua, 16°	"	.02¼
18°	"	.02¾
20°	"	.03¼
26°	"	.04½@.05
Ammonium—Bromide, p'r'e	"	.52@.53
Carbonate	"	.05½
Muriate, gran., white	"	.05¼
Lump	"	.08¾
Gray	"	.05
Nitrate, white, pure (99%)	"	.10½
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¼
Best	"	.08½
Oxide, com'l white, 95%	"	.20
Com'l white, 99%	"	.35
Com'l gray	"	.07@.08
Sulphuret, com'l	"	.16
Arsenic—White	"	04@.04¼
Red	"	.07¾@.08
Asphaltum—California Ventura	sh. ton	32.00
Cuban, best	"	40.00
Common	"	20.00
Egyptian, best	"	130.00
Trinidad, refined	"	40.00
Gilsonite, Utah, ordinary	"	65.00
Select	"	75.00
Barium—Carbonate, lump, 80@90%	"	25.00@27.50
92@98%	"	25.25@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02¾
Chem. pure cryst	"	.05
Nitrate	"	.08
Oxide, com'l, hyd. cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphide	"	.40
Sulphate	"	.01@.02¾
Barytes—Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
Prime White	"	12.00@15.00
American, floated	"	12.50@18.00
Foreign, floated	"	19.50@21.00
Bauxite—Georgia, f.o.b. cars, first grade	lg. ton	5.10
Second grade	"	4.35
Alabama, f. o. b. cars Rock Run	"	3.85
Benzole—90%	gal.	1.00@1.10
Bismuth—Oxide, hydr.	lb	2.25@2.56
Subnitrate cryst.	oz.	.09@.10
Bitumen, "B"	lb.	.03½
"A"	"	.05
Bone Ash	"	.02¾@.03½
Borax—Cryst. and pow'd	"	.07@.07¼
Calcined	"	.19
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.90@2.00
Sulphide	"	1.90@2.25
Sulphate	"	2.00@2.50
Calcium—Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	"	.03@.04

	Cust. Meas.	Price.
Calcium—		
Acetate, pure white	lb.	.10
Carbonate, ppt.	"	.05
Chem. pure	"	.75
Chloride	100 lbs.	.90
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.95@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.90
Sand cement, 400 lbs.	"	1.85@1.95
Slag cement, imported	"	1.65
Cerusine—		
Orange and Yellow	"	.10½@.11½
White	"	.11@.13½
Chalk—Lump, bulk	sh. ton	2.15@2.25
Ppt.	lb.	.04½
French	100 lbs.	.30@.35
Chlorine—Liquid	lb.	.30
Water	"	.15
Chrome Ore— (50% chrome) ex ship	lg. ton	23.00
Clay, China—Am. com.	"	8.00
Am. best	"	9.00
English, common	"	10.50@12.50
Best grade	"	15.00
Fire, ground, f.o.b. Jersey City, N. J.	"	4.00@5.00
Slip Clay, f.o.b. Albany	"	3.00
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide—Black	"	1.75
Gray	"	2.25
Smalt, ordinary	"	.17
Best	"	.25
Chem. pure	"	5.00
Copperas	100 lbs.	.60@.62½
Copper—Carbonate	lb.	.16@.18
Chloride	"	.25
Nitrate, crystals	"	.32
Oxide, black	"	.16@.20
Ppt., pure	"	.50
Red	"	.16@.20
Ppt., pure	"	.35@.40
Cream of Tarter—crys.	"	.23¼@.23½
Granulated	"	.23¼@.23½
Powdered	"	.23¼@.24
Cryolite	"	.06¾@.08½
Explosives—		
Blasting powder, A	"	.08½
Blasting powder, B	"	.05½@.05½
"Rackarock," A	"	.25
"Rackarock," B	"	.18
Judson R.R. powder, by carload	"	.10
Dynamite, (40% nitroglycerine)	"	.15
(50% nitro glycerine)	"	.17
(60% nitro glycerine)	"	.19
(75% nitro glycerine)	"	.23
Glycerine, for nitro (32 2-10° Be.)	"	.11@.11¼
Nitro-Benzole	"	.14@.15
Feldspar—Ground	sh. ton	6.50@7.75
Flint—(See Silica).		
Fluorspar—Am. lump	"	5.50
Gravel	"	5.50@7.00
Crushed	"	5.50@7.50
Ground	"	11.00
Extra fine ground	"	12.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)	sh. ton	8.00
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth— Ground, best qualities	"	20.00@.40.00
Iodine—Crude	100 lbs.	2.45
Resublimed	"	2.85
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01¼@.01¾
True	"	.04
Oxide	"	.02@.12
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate		
White, broken	lb.	.07
Com'l, broken	"	.06¾
White, gran.	"	.08¼
Nitrate, com'l	"	.06½@.06¾
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.65@.75
Finishing	lb.	.75@.80
Magnesite—		
Crude, lump (97%) Greece	lg. ton	7.00
German	"	12.00
Calcined, 600° C. (Greece)	sh. ton	17.50
1,005° C. (Greece)	"	19.50
Domestic	lg. ton	12.00@15.00
Bricks, all magnesite	M.	185.00
Magnesite and chrome	"	226.00
Magnesium—		
Metallic, ingots (Ger.)	kg.	5.95@6.90
Powdered (Ger.)	"	6.19
Ribbon or wire (Ger.)	"	10.00
Carbonate	lb.	.10
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Manganese—Crude, pow'd 75@75% binoxide	"	.01¼@.01½
75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%	unit	.21@.22½
Marble—Flour	sh. ton	5.50@8.00
Mercury—		
Bichloride	lb.	.59@.60
Bisulphate	"	.41

	Cust. Meas.	Price.
Mica—Ground	lb.	.04@.06
Sheets, 1½x3 in.	"	.60
8x10 in.	"	13.00
Mineral Wool—F. o. b. Stanhope, N. J.:		
Slag, ordinary	100 lbs.	1.00
Selected	"	1.67
Extra	"	4.00
Rock, ordinary	sh. ton	37.00
Selected	100 lbs.	4.00
Extra	"	7.00
Monazite—92%	sh. ton	140.00
Nickel—Oxide, bl'k No. 1	lb.	1.00
Black No. 2	"	.60
Green, No. 1	"	1.00
No. 2	"	.60
Oils—Black, reduced 29 gr., 25@30 cold test	gal.	.07@.07½
Black reduced 29 gr. 15 cold test	"	.08@.08½
Black reduced 29 gr. zero	"	.11@.12
Black reduced summer	"	.06½@.07
Smith's Ferry, 33@34 gr.	"	.07½@.08½
West Virginia, 29 gr.	"	.22@.24
Cylinder, dark steam ref	"	.08@.13
Dark filtered	"	.11@.16
Light filtered	"	.13@.15
Extra cold test	"	.21@.25
Gasolene, 86°	"	.14@.15
88°	"	.16@.17
90°	"	.19@.20
Neutral filtered, lemon, 33@34 gr.	"	.13@.18½
White, 33@34 gr.	"	.21@.23
Wool grade, 32 gr.	"	.11@.14
Naphtha, crude, 68@72°	"	.10
Deodorized	"	.10½
Paraffine, high viscosity	"	.20@.25
23½@.24 gr.	"	.08¾@.09
25 gr.	"	.07¾@.08
28@32 gr.	"	.06¼@.06¾
Red No. 1	"	.08¾@.08¾
No. 2	"	.07¾@.08¼
Linseed, domestic raw	"	.46@.48
Boiled	"	.49@.50
Calcutta, raw	"	.58
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	08½@.10
Wood grease	"	05@.06
Ozokerite—Foreign	"	.06@.08
Paints and Colors—		
Benzine, Sumatra	"	.35@.40
Marbled	"	.27@.28
Chrome green, common	"	.05@.06
Extra	"	.12@.15
Chem. pure	"	.19@.25
Super	"	.10@.12
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack—Com'l	lb.	.03@.05
Refined	"	.08@.10
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd.	"	.05½@.05¾
English flake	"	.07¾@.08
Metallic, brown	sh. ton	18.00@20.00
Red	"	18.00@20.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾@.05
French, washed	"	.01¼@.02½
Orange mineral, Am.	"	.06¾@.07¾
Foreign, as to make	"	.07¾@.10¾
Paris green, pure (bulk)	"	.11½@.12½
Red lead, American	"	.05¼@.05¾
Foreign	"	.07½@.08
Shellac, D. C.	"	.27@.28
Native	"	.16@.17
Turpentine, spirits	gal	.30@.30½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver, bulk	"	61
Chinese	"	.80@.90
English, imported	"	.70@.90
Artificial	"	.10@.20
White lead, Am., dry	"	.05¼@.05¼
In oil	"	.05¾@.06¼
English, in oil	"	.07½@.08¼
Whiting, common	100 lbs.	.40@.50
Gilders	"	.50@.60
Zinc white, Am., ex. dry	lb.	.04½@.05
American, red seal	"	.06½@.07½
Green seal	"	.07½@.08
Foreign, red seal, dry	"	.07@.08¾
Green seal, dry	"	.07½@.08¾
Foreign, red seal, in oil	"	.10½@.11¼
Green seal, in oil	"	.11¾@.12½
Pitch—Coal tar	gal.	.08
Plumbago—Amc., pulv., f.o.b., Providence, R. I.	sh. ton	30.00
Lump	"	8.00
German, lump	100 lbs.	.95
Pulverized	lb.	.01½@.02
Ceylon, crude	"	.01¼@.04½
Pulverized, common	"	.04½
Best	"	.06@.08
Italian, pulv.	"	.01¼
Potash—Caustic	"	.04@.05
Potassium— Metallic, in balls (Ger.)	kg.	17.85
Bicarbonate cryst.	lb.	.08½
Powdered or gran.	"	.12
Bichromate	"	.09½@.09¾
Bromide, bulk	"	.46@.47
Carbonate	"	.02¾@.03½
Chromate	"	.35
Cyanide (98@99%)	"	.28@.30
Permanganate, pure cr.	"	.15@.16
Chem. pure	"	.34
Silicate	"	.06
Prussiate, yellow	"	.16@.17
Red	"	.37@.40

	Cust. Meas.	Price.
Potassium—		
Sulphide, com'l	lb.	.10
Quartz—(See Silica).		
Rosin—Common	bbl.	1.35
Best	"	3.00@3.10
Salt—N.Y. com. fine abt. 280 lbs.	bbl.	.70
N. Y. agricultural	sh. ton	1.50
N. Y. coarse	"	2.30
N. Y. dairy and table	"	2.90
Saltpeter—Crude	100 lbs.	3.90@4.00
Refined	"	4.25@5.50
Silica— Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00
Lump quartz	"	2.50@4.00
Silver—Chloride	oz.	.65
Nitrate	"	.40½@.41¼
Oxide	"	.85@1.10
Sodium—Metallic	lb.	.75
Acetate, com'l	"	.09¼
Chem. pure	"	.09¾
Bichromate	"	.07¾@.08
Bisulphite, com'l	"	.01
Bromide	"	.49@.50
Chlorate, com'l	"	.10@.10¼
Hyposulphite, com'l	100 lbs.	1.60
Nitrite	lb.	.07½@.07¾
Peroxide	"	.45
Phosphate	"	.03
Silicate, com'l, 40°	"	.01
Sulphate, gran., puri'd	"	.03
Sulphide	100 lbs.	1.50@1.60
Sulphite	lb.	.02¾
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Carb., ppt.	"	.13@.14
Nitrate	"	.07½@.07¾
Sulphur—Roll	100 lbs.	1.70
Flour	"	1.80@1.86
Flowers, sublimed	"	2.00
Talc—N. C. No. 1	sh ton	15.00@15.50
No. 2	"	10.00@12.00
N. Y., Fibrous	"	8.00@9.00
French, best	"	20.00
Italian, best	"	20.00
Tin—Chloride	lb.	.11@.13
Crystals	"	.18½@.22
Muriate, best	"	.10
Oxide, white, ch. pure	"	.32@.35
Uranium—Oxide	"	1.80@2.00
Zinc—Metallic, ch. pure	"	.09½@.10
Carbonate	"	.15
Chloride	"	.06
Dust	"	.06¾.08
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Calcium—Electrol	"	4.28
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	28.00
Chromium—Fused	kg.	5.95
Pure powder	"	1.79
Chem. pure cryst	grm.	.19
Cobalt—(98@99%)	kg.	5.35@5.71
Pure	"	30.94
Didymium—Powder	grm.	3.81
Nitrate (N. Y.)	oz.	4.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Gallium	grain	9.52
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Ni rate (N. Y.)	lb.	2.50
Indium	grm.	4.05
Iridium	"	1.19
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Molybdenum—Powder	kg.	2.62
Fused, electrol	100 grms.	15.47
Niobium	grm.	3.81
Osmium	"	.95
Palladium	"	2.97
Rhodium	"	4.76
Rubidium—Pure	"	1.55
Ruthenium—Pure	"	26.18
Selenium—Com'l powder	kg	35.70
Sublimed powder	"	28.56
Sticks	"	2.87
Silicium—Amorphous	100 grms.	7.14
Crystals, pure	"	6.19
Strontium—Electrol	grm.	3.57
Tantalium—Pure	"	11.90
Tellurium—Ch. p. sticks	100 grms.	9.52
Powder	"	23.80
Thallium	kg.	7.85
Thorium—Metallic	grm.	7.50@8.09
Nitrate 49@50% (N. Y.)	lb.	.71
Titanium	grm.	.46
Uranium	"	.95
Nitrate (N. Y.)	oz.	1.19
Vanadium—Fused	grm.	23.80
Wolfram—Fused	100 grms.	9.28
Powder, 95@98%	kg.	7.14
Chem. pure	"	8.33
Yttrium	grm.	4.00
Nitrate (N. Y.)	oz.	119.00
Zirconium—Com'l	kg.	.71
Pure	grm.	1.00
Nitrate (N. Y.)	oz.	

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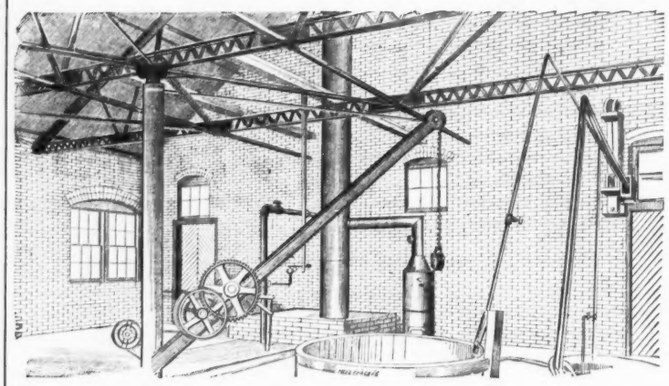

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